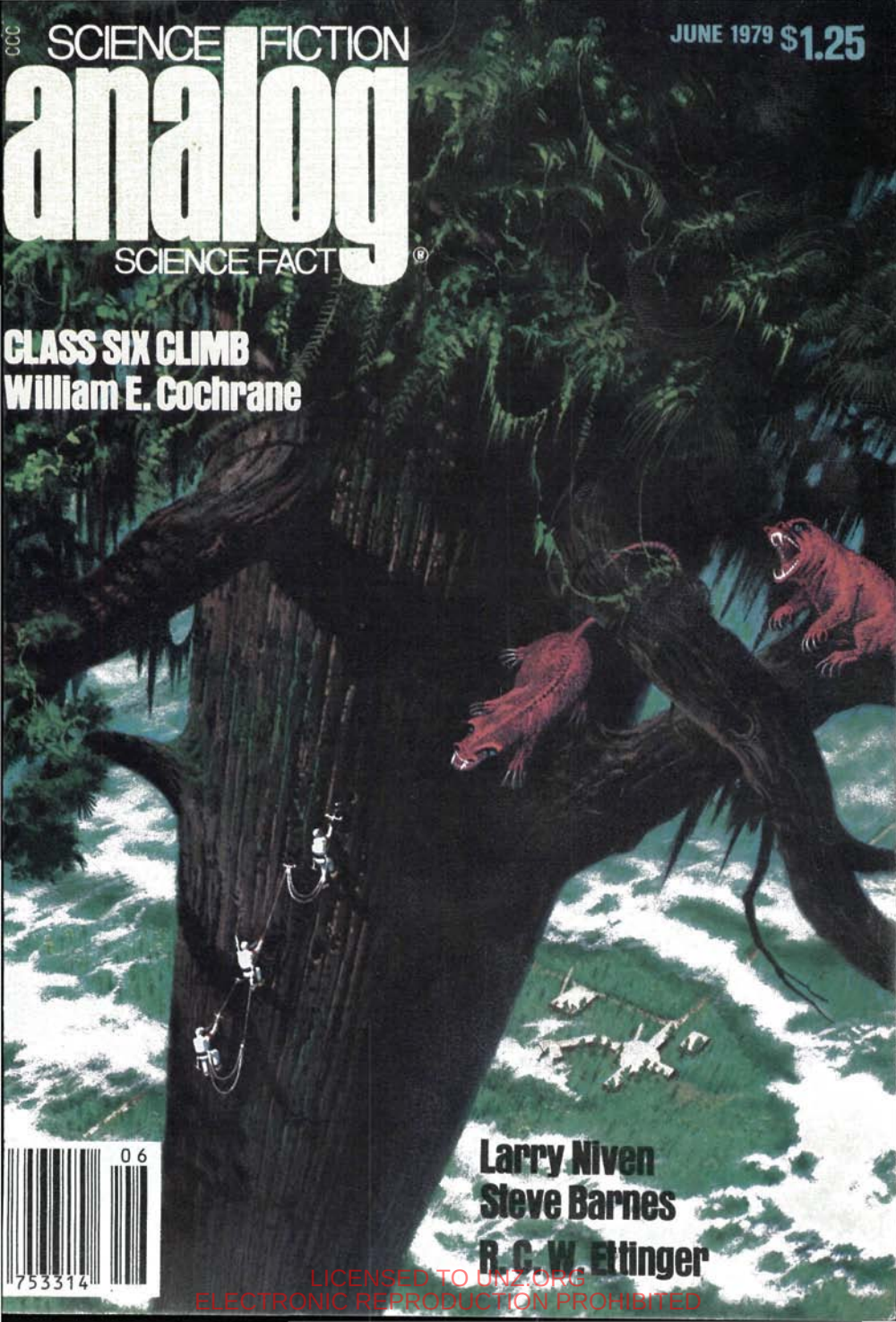


LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

STELLAR CONQUEST

A classic science fiction game... available again!

Fight for control of a globular cluster — build, research, and explore. Victory will go to the player who makes best use of the available resources to outbuild and outguess his (or her) rivals.

The new boxed edition of STELLAR CONQUEST includes 480 counters, 17" x 22" full-color map, rules book, star cards, data sheets, and record sheets. The price is only $12.95 $11.50 for THE SPACE GAMER subscribers.

Game design by Howard Thompson; cover art by Kelly Freas.

When it first appeared, GODSFIRE was hailed as the best political/economic SF game ever designed. Now in a new boxed edition — complete with beautiful full-color cover by Rick Sternbach and enough components for 8 players — GODSFIRE is a "must" for the skilled gamer.

GODSFIRE is two games in one. The basic version is a battle game, with space fleets and ground forces fighting for control of fifteen planets. A unique movement system makes true three-dimensional movement easy.

The advanced game adds diplomacy, subversion, politics — and the chance of Armageddon. Before you go to war, you'll have to gain support from internal political and economic interests (by fair treatment, negotiation, bribery, or force) — or face revolution.

Components include two giant 22" by 34" strategic maps, 15 System Sheets and 6 National Government Sheets; 960 unit counters; 616 Gigabuck counters; and the rule booklet.

Playing time ranges from two hours to all day, depending on the scenario (from 2 to 15 players) that you choose.

Designed by Lynn Willis; edited by Steve Jackson; cover art by Rick Sternbach.

GODSFIRE sells for $15.95 — or $14.00 for The Space Gamer subscribers.

GODSFIRE

Please send me ..... copies of STELLAR CONQUEST at $12.95 each ($11.50 for THE SPACE GAMER subscribers) and ..... copies of GODSFIRE at $15.95 each ($14.00 for TSG subscribers). I (am) (am not) a TSG subscriber.

Please enter my subscription to THE SPACE GAMER for ..... months, at $8.00 for 6 issues or $15.00 for 12 issues. I understand that this subscription entitles me to the subscriber discount on games I am ordering now.

Name.....Address.....City.....State.....Zip.....

Please add 50 cents for postage and handling.

Metagaming

Box 15346-AS
Austin, TX 78761

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

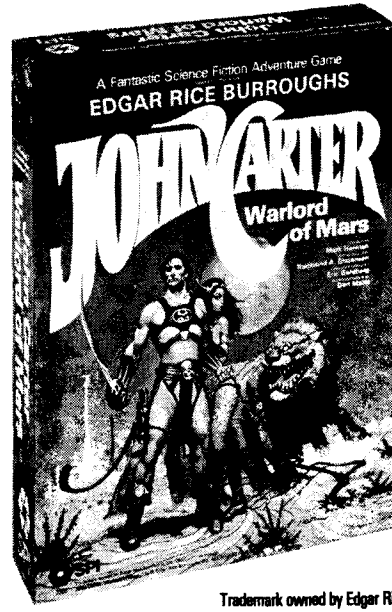
NEW!

A Fantastic Science Fiction Adventure Game

You *are* John Carter, Warlord of Mars, rescuing the incomparable Dejah Thoris from yet another ill-intentioned villain. *You* are fighting against impossible odds as you masterfully duel your way across the throne room of the Palace at Kadabra. *You* command a Barsoomian airship repelling a boarding party of the dreaded Black Pirates. Every thrilling adventure, every important character, every crucial event comes to life in SPI's newest, most exciting science fiction simulation game ever — ***John Carter, Warlord of Mars*** — an authentic re-creation of the fantastic world of the classic Edgar Rice Burroughs SF adventure series.

- **A beautifully illustrated four color map containing a Barsoomian city, Palace and arena, air ship, and all of Barsoom itself!**
- **400 colorful die-cut cardboard playing pieces portraying all the characters and fleets of Barsoom!**
- **168 delightfully detailed Playing Cards for Random Events, Movement, Acquisition, and Maneuver!**
- **A fascinating full-length article with an in-depth analysis of Barsoomian society!**

Use this handy coupon *today* and get Simulation Publications Inc.'s most exciting and memorable SF simulation achievement yet!



Trademark owned by Edgar Rice Burroughs, Inc. Used with permission.
John Carter, Warlord of Mars © 1979, Edgar Rice Burroughs, Inc. All Rights Reserved

SPI Dept. 1043
257 Park Avenue South
New York, N.Y. 10010

Please send me the following games:

☐ **JOHN CARTER, WARLORD OF MARS : $15**

☐ **Swords & Sorcery: $15**

☐ **Middle Earth, Lord of the Rings: $22**

Please enter my subscription to **Strategy & Tactics,** *the bi-monthly magazine with a game in it.*

☐ **1 yr** (6 issues): $15 ☐ **2 yrs** (12 issues): $28

name _____

street _____ apt # _____

city _____ state _____ zip _____

N.Y. & N.J. residents please add sales tax to game portion of order.

SPACE BELOW FOR OFFICE USE ONLY

cc total credit post tx

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

STANLEY SCHMIDT
Editor
ED PELLEGRINI
Associate Editor
COLLEEN PRESTON
Editorial Assistant
HERBERT S. STOLTZ
Art Director
GERALDINE PRASIOTIS
Advertising Production Manager

Next Issue on Sale
June 5, 1979
$10.00 per year in the U.S.A.
$1.25 per copy

Cover by Dean Ellis

Vol. XCIX No. 6
JUNE 1979

SCIENCE FICTION
analog®
SCIENCE FACT

CONTENTS

serial

CLASS SIX CLIMB, William E. Cochrane **12**

novelette

THE LOCUSTS, Larry Niven and Steve Barnes **132**

science fact

A MATTER OF LIFE AND DEATH, R.C.W. Ettinger **67**

short stories

MORE THAN LIFE, Ronald R. Lambert **76**
TEMPLE GUARDIAN, Kevin O'Donnell, Jr. **95**
MS FOUND IN A COCONUT, Alfred Bester **104**
. . . AND MASTER OF ONE, Ian Stewart **113**

reader's departments

GUEST EDITORIAL: DON'T TREK ON ME, Wain Saeger **5**
BIOLOG **111**
THE ALTERNATE VIEW, Jerry Pournelle **127**
THE ANALOG CALENDAR OF UPCOMING EVENTS **129**
THE REFERENCE LIBRARY, Spider Robinson **167**
IN TIMES TO COME **173**
BRASS TACKS **175**

Analog Science Fiction/Science Fact is published monthly by The Condé Nast Publications Inc.; Condé Nast Building, 350 Madison Avenue, New York, New York 10017. S. I. Newhouse, Jr., Chairman; Robert J. Lapham, President; Fred C. Thormann, Secretary-Treasurer.

Second class postage paid at New York, N.Y. and at additional mailing offices. Subscriptions in U.S. and possessions, $10.00 for one year, $18.00 for two years, $25.00 for three years. In Canada and Mexico, $12.00 for one year, $22.00 for two years, $31.00 for three years. Elsewhere, $13.00 per year; payable in advance.

Single copies in U.S., possessions, and Canada, $1.25. For subscriptions, address changes and adjustments, write to Analog Science Fiction/Science Fact, Box 5205, Boulder, Colorado 80323. Eight weeks are required for change of address. Please give both new and old address as printed on the last label. Postmaster: Send form 3579 to Analog, Box 5205, Boulder, Colorado 80323. First copy of new subscription will be mailed within eight weeks after receipt of order. The editorial contents have not been published before, are protected by copyright and cannot be reprinted without the publisher's permission. All stories in this magazine are fiction. No actual persons are designated by name or character. Any similarity is coincidental. We cannot accept responsibility for unsolicited manuscripts or art work. Any material submitted must include return postage.

COPYRIGHT © 1979 BY THE CONDE NAST PUBLICATIONS INC. ALL RIGHTS RESERVED. PRINTED IN THE UNITED STATES OF AMERICA.

ISSN 0161-2328

POSTMASTER: SEND FORM 3579 to ANALOG SCIENCE FICTION/SCIENCE FACT, BOX 5205, BOULDER, COLORADO 80323.

Editorial and Advertising offices: Condé Nast Building, 350 Madison Avenue, New York, New York 10017

Subscriptions: Analog Science Fiction/Science Fact, Box 5205, Boulder, Colorado 80323

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

DON'T TREK ON ME

Wain Saeger

As an academic psychologist, writing this guest editorial presents me with an unprecedented personal and occupational incentive. Personal because, like many colleagues, I have an abiding interest in reading and thinking about issues raised in science fiction stories; occupational because of the forum in which to present my case for using science fiction in teaching to a new audience. Ordinarily, when communicating with other social scientists, I intend to demonstrate how and expound upon why science fiction can be used to foster a mutualistic association with their course content and teaching approach. This is still my intention here, for the grooves are deep (to answer Philip José Farmer's title[1]). However, in appreciation of the greater literary knowledge but perhaps lesser academic inclination of the Analog readership, this exposition will take an inverted focus. Specifically, rather than starting with a rationale for and defense of science fiction and tying it in with teaching, I will begin with a consideration of psychology, as it is normally taught, and then connect these concerns with critical comments by various individuals to illustrate the potential benefits of this union in the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

classroom and the real world.

In order to set this analysis in motion, I would like to propose that psychology as normally taught (this state may also be characterized as mainstream psychology[2] or middle-of-the-road psychology) rests on four orthodox presuppositions: (a) fixation on content and laboratory derived facts and their function in education, (b) stress on mathematics, especially for those majoring in the social sciences, (c) emphasis on psychology as a science to the neglect of other paths of acquiring psychological knowledge, and (d) graduate or professional school as the preferred career orientation. Let me briefly consider each one of these "four pillars of wisdom" in turn and then reflect on the fallout from this approach to instruction.

Students in psychology courses as they are normally taught find themselves confronted with a regularly scheduled dispensation of documented "facts" covering some aspect of the discipline. Different methods of presentation may be employed (e.g. lecture, individualized instruction) but the emphasis on factual content remains essentially the same. These facts, for the most part, are highlights of empirical findings based primarily on laboratory experimentation that are presented in journals, books, and other publications. Fact 1 leads to fact 2 and so on. These approaches are aided by content oriented introductory texts and abetted by examinations requiring factual recall. (As a short digression, I must point out that facts are tricky inasmuch as they are influenced by perspective and swayed by bias in both their development and interpretation. Moreover, facts are not the sole property of science. We are daily assailed by thousands of often contradictory facts via the media and our interaction with the world.) When such "facts" become the steady class diet, students are likely to grow disenchanted with the now discrepant image which was conjured up by the course title or catalog description used to make their decision to register for the course.

This emphasis on the dispensation, accumulation, and testing over these experimental facts, often without a meaningful integrating theme (other than a chapter heading which is meaningful only by fiat) places the instructor, like it or not, in the position of an oracle who has to be consulted because he or she has "all the facts." The authority may be questioned but seldom refuted.

The net result of this approach is courses which are mentally filed away or totally discarded at their completion.

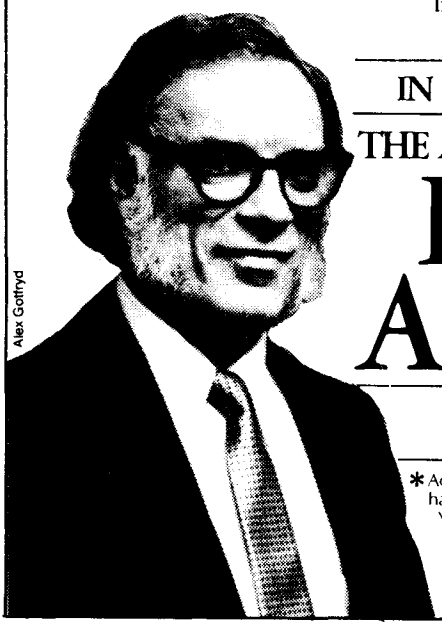
Emphasis on mathematics is certainly the least objectionable presupposition; however, to some extent we teachers of the basic social sciences may be trying to fit round pegs into square holes. I will expand upon this point in my discussion of the emphasis on graduate study. Mathematics is an essential tool for the acquisition and transmission of knowledge. What I am objecting to is the tail wagging the dog.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

In his 200th book*, Isaac Asimov reveals what makes a man write 200 books.

In his 200th book, Isaac Asimov finally writes about himself. IN MEMORY YET GREEN begins with his family's emigration from Russia and takes us through his education as a scientist and the writing of his famous *Foundation Trilogy* and "Nightfall." Along the way, he sells his first story; gets to know the legendary John Campbell of *Astounding Science Fiction*; joins the Futurians, a fan club that turned into a galaxy of SF greats. This is a book filled with the history of SF and with revealing insights into the formative years of the "national resource and natural wonder" that is Isaac Asimov.

To further mark the occasion, Doubleday has begun reissuing his early, classic science fiction in uniform omnibus editions. THE FAR ENDS OF TIME AND EARTH contains the novels *Pebble in the Sky* and *The End of Eternity*, and the story collection, *Earth is Room Enough*. The second volume, PRISONERS OF THE STARS, contains the novels *The Stars, Like Dust* and *The Currents of Space*, and the collection, *The Martian Way and Other Stories*. Eventually, Doubleday will republish all of Isaac Asimov's fiction.



Alex Gotfryd

IN MEMORY YET GREEN

THE AUTOBIOGRAPHY OF

ISAAC ASIMOV

1920-1954

* Actually, Isaac likes to keep his publishers happy, so he has written *two* "200th books." You'll also find *Opus 200*, published by Houghton Mifflin, at booksellers now.

DOUBLEDAY

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

The emphasis on psychology as a science to the neglect of other paths of acquiring psychological knowledge is related to the stress on mathematics just mentioned. Whereas the quantitative emphasis may be an error of commission, the stress on psychology as a science is more of an error of omission—an error receiving increasing scrutiny. In this regard I put forth two recent remarks by Sigmund Koch in "Psychology and the Future" (1978) who suggests that ". . . the *noncohesiveness* of psychology finally be acknowledged by replacing it with some such location as 'the psychological studies.' " Furthermore, Koch eloquently notes the difficulty of approaching psychology as nothing but a science: "Psychological events are characteristically multiply determined, ambiguous in their human meaning, polymorphous, contextually 'environed' or embedded in complex and vaguely bounded ways, evanescent, and labile in the extreme." Such remarks strongly indicate that there must be many paths to understanding such psychological events.

The final presupposition, emphasis on graduate study, represents the embodiment of the other three presuppositions.

The key to admission to graduate and professional study is controlled by multiple-choice examinations such as the Graduate Record Examination which was administered to over 300,000 students during 1974-1975. High scores unlock the doors—while low scores, well you can guess.

A recent report by Boldt (1976) demonstrates that in basic social science students, at least the more recent ones, abilities and interests are more closely aligned with the humanities than they are with the physical sciences. Specifically, Boldt found that ". . . throughout the period [1970-1975], candidates in the Basic Social Sciences *maintained* the highest verbal mean scores in the Science group." (Italics added.) To be fair, I must add that this group also maintained the lowest quantitative scores. Such a composite can be interpreted in at least two ways: (a) such students have a relatively high aptitude for and interest in language related activities, or (b) such courses of study produce highly verbal individuals (in spite of efforts to produce empirical scientists). Either interpretation provides firm ground for the use of literature in general and science fiction in particular as a valid tool for teaching "the psychological studies."

There are a couple of unstated implications and unintended consequences of the normal approach just outlined which short-change students and instructors.

First, class interaction tends to be dominated by the textbook facts and the person who "knows the facts"—the instructor. This situation may confront instructors in spite of their best efforts to generate class discussions based on lectures and readings. This condition is often due to the setting which makes the instructor the master of the facts, but in different senses. On

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

the one hand, as prestidigitator, the instructor can pull fact after fact out of sleeves and hats (as well as keeping them concealed). The class/student is then left with the old shell game of finding the pea of knowledge hiding under the shells of positivism. Such a condition, I believe, is the result of an overemphasis on method and content to the neglect of the meaning of empirical findings in their historical and societal contexts. On the other hand, instructors realize that while they are in control of the small fiefdom of the classroom, their homage is to "higher things" (e.g. publication, grant writing, working with eminent persons). In extreme but not unfrequent cases, teaching is looked at as a hindrance to the futherance of these career goals.

Second, and most critical because of its implications for moral, social and intellectual development after the completion of the course and beyond "formal education" is the perspective that prevails over psychology as normally taught. The educational lockstep system, with its reliance on laboratory facts and on testing over these facts in order to gain admission to and passage through graduate study, causes instructors to focus on past knowledge and fails to adequately prepare students to cope with their world—the world of the future.

Now that I have finished criticizing my occupation, I surely have the obligation to offer an alternative and to support its use. To accomplish this I will provide critical comments from the work of others within and outside the discipline of psychology.

James Deese, in *Psychology as Science and Art* (1972), puts forth the belief, similar to Koch's remarks, that "the most likely change for psychology in the future is a gradual redefinition of its subject matter, methods, and practice that will make it both broader in scope and less inhibited by tradition." The use of science fiction literature fits in well with this remark.

Arthur W. Chickering notes the merits of literature for developmental change. In this regard, he points to some of the specific characteristics of literature in facilitating these changes:

> Most significantly, perhaps, literature takes us beyond vague generalities about goodness, truth, justice, integrity, and responsibility. Commitment to personal, social, and educational values, which assert concern for responsible citizenship, tolerance of others, and autonomy and interdependence is easy in the abstract, but literature, by being descriptively specific, shows what those values can really mean. It protects us against easy labeling and facile self-deception.

Literature provides the landscape for embedding psychological concepts, facts, and methods with a specific situation. In this regard they are much like case studies used in business and law.

James Oshinsky together with Stephen Anderson taught one of the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

first nationally recognized courses on psychology through science fiction at the University of Tennessee. He remarks on how the use of science fiction invigorates classroom interaction:

> This manner of presentation significantly alters the role of the instructor, making him or her more of a participant in a joint speculative enterprise, thus simultaneously stressing creative, extrapolative thinking, and filling the gap that often exists between the referents and examples available to the instructor and those of the student.

This above mentioned change in classroom interaction ameliorates both the instructor's function as master of the facts and the fixation on content without a specific unifying theme.

Let me now conclude this section with two statements by persons outside of the discipline.

Darko Suvin, professor of English at McGill University and noted analyst of this genre, summarizes the capacity of science fiction for teaching the social sciences:

> In other words, this is an educational literature, hopefully less deadening than most compulsory education in our split national and class societies, but irreversibly shaped by the pathos of preaching the good work of human curiosity, fear, and hope. Significant SF . . . denies thus the 'two-culture gap' more efficiently than any other literary genre I know of. Even more importantly, it demands from the author and reader, teacher and critic, not merely specialized, quantified positivistic knowledge (scientia) but a social imagination whose quality, whose wisdom (sapientia), testifies to the maturity of his critical and creative thought.

The above statement bespeaks to the core of psychology as normally taught.

At the other end of the two-culture gap, Carl Sagan, professor of astronomy and space sciences at Cornell University, provides strong support for those interested in adopting this approach for their courses:

> *The great interest of youngsters in* science fiction is reflected in a demand for science fiction courses in high schools and colleges. My experience is that such courses can be fine educational experiences or disasters, depending on how they are taught. Properly planned science-fiction courses, in which real science or real politics is an integral component, would seem to have a long and useful life in school curriculums.

Sagan's caveat about planning and integration of science fiction stories with traditional disciplinary knowledge is well taken. The teacher is forced to be more mentally animated when employing such an approach or runs the risk of confusing the class.

So much for the union of science fiction and the social sciences in the classroom. How about the real world? Briefly, the conception of the business

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

world has significantly shifted since Henry Ford II penned the following: "The new science fiction is a lot less entertaining than the old, and undoubtedly will prove to be no more valid. In the real world, time moves only in one direction." The chairman's statement is in contrast to a recent article covering the increased use of science fiction writers as corporate consultants in order to "tap their futuristic insights and ways of thinking." Ben Bova, in the same article, estimates that one-quarter of the "hard core" science fiction writers are engaged in this capacity. Ford has a better idea? It seems clear that the use of science fiction as a supplement for teaching in higher education is not limited to the social sciences and the humanities, but should move into the fields of management and planning as well.

The concluding paragraph is for all those people who may have been wondering what the title of this editorial has to do with anything. It simply is this: do not confuse popular science fiction movies and the almost legendary *Star Trek* with the collective actions of concerned professionals who are trying to arouse higher education and educators into an orientation towards the 21st century (however hackneyed this may sound). The chamade grows louder. Who will answer it? ■

References

Boldt, R. F. *Trends in aptitude of graduate students in science.* Washington, D. C.: National Science Foundation, 1976.

Chickering, A. W. Developmental change as a major outcome. In M. Keeton (Ed.), *Experimental learning: Rationale, characteristics and assessment.* San Francisco: Jossey-Bass, 1976, pp. 62-107.

Deese, J. *Psychology as science and art.* New York: Harcourt Brace Jovanovich, 1972.

Ford, H. 2d. Sci-fi missing the boat in automobiles. *The New York Times*, August 1, 1976, p. 12.

Oshinsky, J. The mechanics of teaching psychology through science fiction: Some nuts and bolts. Paper presented at the Massachusetts Psychological Association, Worcester, MA, October, 1976.

Sagan, C. Growing up with science fiction. *The New York Times Magazine,* May 28, 1978, pp. 24, 28, 30, 31.

Suvin, D. On the poetics of the science fiction genre. *College English*, 1972, *34*, 372-382.

Weiner, S. Corporate planning not fiction. *The Knoxville Journal*, July 28, 1978, p. C2.

Wertheimer, et al. Psychology and the future. *American Psychologist*, 1978, *33*, 631-647.

Footnotes

[1]Farmer, P. J. How deep the grooves. In P. J. Farmer, *Down in the black gang.* New York: Signet, 1971, pp. 205-215.

[2]Braginsky and Braginsky. *Mainstream psychology: A critique.* New York: Holt, Rinehart and Winston, 1974.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

CLASS SIX CLIMB

**Why climb a mountain? Many know the answer;
few understand it but climbers. But the reason still holds,
whether it's a mountain or a Tree which is There.**

WILLLIAM E. COCHRANE

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

CLASS 5 CLIMB:
A climb of severe difficulty; requiring artificial aids (hexagonal nut loops, entrier ladders, crack stoppers, prusik clamps, etc.) in order to secure safe purchase, and ropes to protect all climbers.

CLASS 6 CLIMB:
A climb where rock or climbing surfaces present special difficulty for all climbers, regardless of planetary origin or gravity training. Artificial aids are mandatory, and local guides, with specialized knowledge of the terrain, are required.

Class 6 is not necessarily more difficult than Class 5.

PROLOGUE

An intelligence computer can be programmed to produce audible and visual alarms when it is running its daily hard copy summary for the Galactic Chief of Space Operations. Not all of these alarms are concerned with major tactical dispositions of planetary forces. The daily sitrep covers those as routine. The CSO's alarm code is rather more exotic than that.

A staff commander read the alarm item, whistled in interest and punched the item through to the Admiral's desk viewer—MOST IMMEDIATE—breaking into a conversation in progress.

"*Kyle Murre*?" Admiral Gregarson read the summary. He could switch his attention, instantly and fully when one of these alarm sitreps showed up. "We haven't had anyone challenge our isolation policy on that planet for a long time. Details!"

His screen displayed an expanded briefing of the intelligence data held by the computer.

"Ah. General Bartlet, this is a job for your Mountain Marines, I think. I want that planet kept undeveloped and completely under the control of its native population. It is being maintained as a recreation center is it not?" He transferred the brief to the console of the staff officer on his left—Marine General Bill Bartlet.

"Yes, sir. Mountaineering; specialized climbing. What's the trouble? Hmmm. Procyon, heh? This says the Lodge already has a climb reservation for a Procyonian officer . . . and a space accident . . . amateurish. Do you want the accident to be stopped, or shall I let it happen?"

"Why don't you beat them to it, Bill," the Admiral said.

"Hmmm. Have our own accident

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

and keep everybody away. Very well. Fun."

"And I think you had better pack that climb party with some of our own people. You never can tell what that Procyonian may be intending to do."

"Marines? I've got some boys that are good enough, but I would have to forge Master Climber Certificates for them."

"No. Find legitimate Master Climbers. I don't want the Treaty of *Kyle Murre* bent too far out of shape. Do it smoothly, but block Procyon off *Kyle Murre*. I want that planet left alone."

"Aye, aye, sir."

Admiral Gregarson cleared his screen, got his caller back and began talking in the same place where his conversation had been interrupted earlier.

1

The Taansvaal Charter cruiser was still crackling and snapping with heat dissipation stresses when her three passengers were hurried through the unloading tube into the terminal building. *Kyle Murre* was a closed planet, used exclusively by the Taansvaal Sporting Club. The one spaceport was theirs alone, there was no populated city around or near the port and this one charter was the only ship expected in for three weeks. In addition; the port buildings were thoroughly screened against heat and radiation; the passengers had waived all claims for physical injury; as guests of the Sporting Club they were paying for their stay on *Kyle Murre,* not for waiting in their Outstar cruiser compartments. With these factors in account, the last weighing more than the rest, the port officials bent the cool down regulations and let TSC customers on-planet as soon as possible.

The three passengers, hurried along the tube by the ship's steward, were ushered through the radiation shield into the wood and glass opulence of the spaceport waiting room. They were faced with a single low counter—the standard, utilitarian, customs barrier of spaceports everywhere. This one was distinguished by three human inspectors and two native Kyle Murrian inspectors.

"Your baggage will be off in a few minutes," the steward announced. "When it comes up the conveyer, you may go directly to customs inspection. Have a pleasant stay on *Kyle Murre*." He rattled off the speech and disappeared through a side door before the passengers could trap him with questions.

"Whew eee! Will you look at all the wood!" The whistler was Arden Barth, the tallest of the three passengers. A thin, muscular man wearing bloused climbing pants, *klodoer* boots and a light *anorak* jacket, all in a pale blue. The color was partly a uniform effect and partly the result of weathered fabric and many washings. Here and there on the jacket were darker spots, outlines of club badges and award-patches which he'd removed, evidently to make the climb-clothes more acceptable for social wear. He had worn nothing else on shipboard; setting a

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

pattern for eccentric dress—or defiantly announcing that he had nothing else to wear.

"With Kyle Murrian wood going at a megabuck a board," Arden went on. "The old Sporting Club sure picked a fine way to tell everybody how rich they are, didn't they?"

"The cost is mostly in off-world Outstar shipping," the shorter of the two men said. He was Dr. Eldon Barr a PhD in anthropology. "The Taansvaal Club is only allowed to ship a limited amount of wood off-planet. If they cleared a forest to build this spaceport, there must have been a surplus of wood. Valueless, unless they used it for decoration. Of course, carved like that. . . . You're right, it is priceless, now."

"Ostentatious," the girl said, shaking her blond head. "They're telling us our money doesn't mean anything to them. Social leveler for millionaires."

"You may be right, Lady Van Horn," Barr said, laughing. "Do you feel humbled? You are the only millionaire within parsecs. My bank computer will need special programming to find my balance after this vacation."

"Positively leveled," Jessica said, laughing in turn. "I'm going to call you Doc I feel so equal. Mind? What about you, Arden Barth? Does the woodwork put you down?"

"Arden, please, lovely lady-equal," Barth said, bowing his permission to use his first name. "I'll wait until the *maitre-d'* seats us at dinner." His voice slid into the lazy tones he used to cover his real feelings. *His* bank balance was in the locked kit-box of his travel-case. His stay on *Kyle Murre* was wholly dependent on the Sporting Club's with all expenses paid and a no spending policy. "That is my infallible test of blue-chip superiority. And if we can't tip him, Loves, he will be computer-honest in his evaluation. Care to bet?"

"No contest," Doc Barr said. "Lady Van Horn . . . Jessica . . . by a nose."

"Indelicate; comparing her to a horse, but I must agree," Arden said, grinning. "No bet."

"Idiots!" Jessica liked the attention, but frowned a little at the direction it was taking. She'd come to *Kyle Murre*, partly to get a vacation from the business responsibilities—the social stuffiness—of her money; the every-service-paid-for policy was acceptable to her also if for a different reason. She didn't like the two other guests marking her as a rich millionairess. "When do we go through customs?" she asked, not expecting an answer, just changing the subject.

"Ah, honored guests. I will be able to help you with that almost immediately." A strange voice called out, causing the three to turn. A short, rather round man was coming toward them waving a list-board in one hand and calling out their names over and over as if he might forget them if he stopped. He was wearing a stylized white jacket—cut like a regular coat, but faked up to look like climb-gear—with the TSC arms on the pocket and

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

an equally white skirt, in the Kyle Murrian native style. The costume was meant to look like a uniform and couldn't be mistaken for anything else.

"Barth-Van Horn-Barr-Barth-Barr-Lady Van Horn. Honored guests. I was a bit delayed, or I would have been here sooner." He stopped to bow, but kept on talking. "There has been a slight problem concerning the fourth member of your party—Brigade Captain FitzRoi. I've come down to usher you through customs and fly you out to the Lodge as soon as possible."

"Problem? What problem?" Jessica asked, jumping to the conclusion that the problem was the usual one she met—someone had decided the *Kyle Murre* was too serious a climb to make in the company of a woman. "I don't know your name."

"Oh, pardon. I'm Leighton, Club secretary at the Lodge, Lady Van Horn," the secretary said, giving her another quick half-bow. "Captain FitzRoi landed yesterday. He came down in a two-man cruiser—military flight plan. We couldn't refuse to land him, you see. The problem is, he insists that he is here to make a solo climb. And, of course, that is a problem. We can't allow that. Just can't. I had planned to have him climb with your party—four is just the right size. But he won't have it. He's being most difficult—refuses advice. Ordering the native staff . . . one just doesn't handle these people like that. This isn't a commercial planet, you understand. The Taansvaal Club, just has lease-conservation treaties for our land. The forest belongs to the Kyle Murrians . . . can't bully them. Most difficult."

"We are going to climb?" Arden asked stiffly. Even a minor change of plans would be close to personal disaster at this point.

"Certainly. Certainly. When I can get you all together—show you the excellent plans we have put together—I'm sure Captain FitzRoi will see the reasons behind our safety regulations and . . . his responsibility to the rest of you, who have come so far to enjoy our hospitality."

"And if he doesn't? A party of three could still climb, couldn't they?" Doc Barr asked.

"Well, yes." The secretary frowned. "The supply packs would be . . . yes, it would be possible." Then his face cleared, he wasn't going to give up his plans so easily. "But he will agree, I'm sure. Four is a much easier climb. Much more pleasant."

"ATTENTION ON LANDING PAN, QUADRANT TWO. HARVESTER ABLE-TWO IS CLEARED TO ENTER THE FARM AT RAMP TEN."

Kyle Murre had a thick heavily-oxygenated air which coupled with the constant cloud cover and the water-vapor content to make it a good conductor of sound. The port operations were managed by means of a high-wattage PA system instead of radio or more expensive electronics. The announcement had sounded on the speakers outside the port buildings, but the glass windows of the customs

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

room transmitted the sound waves clearly to the inner air. There was an energy loss, but the words were easily audible.

"IRRIGATION TRUCK DELTA-FIVE: YOU ARE CLEARED INTO THE FIELD AT RAMP TWO."

"Traffic control on farm equipment?" Jessica said. "None of the literature said anything about that. I thought this was supposed to be a Prim-world?"

"Come look," Doc Barr called. He had walked to the window. "They have tree farms out there around the launch pads and between the buildings. These trees only grow in a narrow belt here on this coast. Land is too valuable to waste any of it on empty space between buildings. Evidently the Kyle Murrians let the TSC build this port only if they could farm the unused land. Come look!"

The group drifted over to the window to look out at the neat rows of young trees planted in contoured sweeps along the roadways and in all the open space beyond the radiation berm of the landing pad. They were small single trunked trees with three or four radical branches and, in one area, at the far end of the space facing the port window, was a bright yellow vehicle and several dozen men, working their way along the rows of trees.

"Their labor methods are certainly primitive enough to satisfy you, Lady Van Horn," Barth said. He passed across a monocular magnifier he'd taken from his belt. "The fuzz-tails seem to be pulling them up with their hands. No wonder *Kyle Murre* wood is so valuable; if the trees are harvested so young. You'd think they'd grow them into larger trees for more profit. Be a lot more efficient."

"They *are* taking them up by hand, Doc," Jessica said. "Why, do you know? Are no machines allowed on-planet?"

"No, not that. The young trees are transplanted to other places in the main forest where they can grow to full size, I imagine. This is just a nursery of sorts. And the work is done by hand, because the trees are a very special kind of responsibility for the Kyle Murrians. They care for them as a mystical-religious duty. You would find that, far from being the usual conception of native labor, Lady Van Horn, those harvesters are probably a highly skilled group of craftsmen . . . a guild, perhaps . . . or even a priesthood. Although, DeSpain was never able to find any evidence of actual, formal worship, he inferred it in several places in his report on the population ecology chain of *Kyle Murre*. Arther DeCoverly, in *Climbing on Kyle Murre*, called it, 'a respect for life', and his reasoning is more popular, easier to read."

Doc Barr was a teacher in anthropology. When he was asked a direct question he sometimes delivered part of a lecture before he remembered where he was. He apparently was the only one who had read more about the planet than the Taansvaal Sporting Club pamphlets.

"Ah, you have studied the litera-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

ture, Doctor Barr," the secretary said. "Mr. DeCoverly, I'm afraid, spent most of his time talking to guides and guests in our bar. His book is somewhat less than accurate. But I must admit it has been extremely popular and quite good for business. It is, as you say, easy to read.

"Now, please, I see your bags have arrived. Let me take you through customs. I have a flier outside. We can be at the Lodge in half an hour." He ushered them deftly toward the waiting inspectors.

The customs inspection was ordinary and because of the controlled entry conditions of their arrival on the TSC charter ship, brief. The secretary's presence didn't get them any special treatment; the inspectors were thorough and efficient. Their method differed from customs inspections at any other port only in that the inspectors, as they opened and searched the travel cases, stood slightly sideways and deferred to the judgement of the Kyle Murrian; giving the appearance that the native was passing on the acceptability of the case.

The native seemed to take his job equally seriously. He scanned every case, not speaking, but occasionally putting out a hand to slow down an operation that was going too fast for him to study it. The wide, short-fingered hand was furred and so was his head, but the rest of his body, including his tail—the TSC brochure had a page and a half about the tail—was covered by a long, pleated skirt and buttoned jacket. His head was humanoid, somewhat more pointed than standard, but with a wide, flat-jawed mouth that characterized most omnivores. His eyes were wide, designed for far-seeing in the planet's thicker air, and darkly pigmented. He had two mobile ears, located higher up on the side of his head than the human norm, and the effect of the ears, eyes and mouth was to give him a look of great wisdom and dignity. Doc Barr, who had some experience with owls on his home planet, was willing to give him the dignity, but reserved opinion about the wisdom. He'd met some very stupid owls. However, except for his size—the Kyle Murrian was a full meter taller than the other inspectors—there was nothing intimidating or fearsome about his appearance. Jessica found him . . . interesting. Arden was assessing his strength as a climb partner, but accepting him as somehow a natural person to be here on *Kyle Murre*. . . .

Doc Barr, trying to remember that he was here on a climbing vacation, was nevertheless professionally interested enough to notice that the native bore none of the signs of a subjugated race; no hoked up costume for visitors; no collection of cheap-but-valued Outworld tools or ornaments. More important, was that air of equality between the inspectors and the Kyle Murrians. They were different people—probably considered themselves of highly different ranks—but they worked together and were friends. In spite of himself, Doc was interested. The literature had been full of obvious

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

contradictions about these tall, furred natives. . . .

The three passengers were, in fact, so absorbed by this first close look at the native Kyle Murrian, that they missed one other aspect of the customs inspection. The cases were closed and were being decorated with the distinctive TSC sticker, before Arden noticed the discrepancy.

"Hold one," he said. "Doc, they haven't unloaded our climb-gear. Grab that secretary, Leighton! He isn't going to let us climb after all!"

"What?" Barr turned to look at Arden, realized what he'd said, and noticed the lack—the missing articles of baggage—at the same time. "Leighton, where is the rest . . ." He turned back to the secretary.

"Please, Doctor Barr. Mr. Barth." The secretary was right beside Doc, making calming gestures with his hands. "Please. Not to worry. Your climbing supplies are being taken care of. Believe me. They will go directly to the Lodge. By a most reliable means."

"Why don't they go with us?"

"You are going to let us climb?" Jessica asked.

"Of course, Lady Van Horn, gentlemen. But not right away." He made more calming gestures with his hands. "Please. Not to worry. This is a safety policy of the Lodge. Please. You have noticed our air? It seems thicker to you? Perhaps you have noticed the higher oxygen content? You feel, less tired, perhaps? Stronger? Ahh, I see you do. This is important.

"*Kyle Murre* has a different air and gravity than you are used to. We insist on a period of time during which you can become accustomed to moving and working on our planet. Your climb-equipment is being held under bond until that period passes. We cannot let you begin a climb until you are fully ready, now can we? The time will not be long. Twenty-six hours; local time. Two very pleasant days. You will enjoy yourselves at the Lodge, I assure you." With small, follow-me motions and a series of walk-away-and-come-back-to-get-them-to-follow-him evolutions, the secretary herded the trio away from the customs counters and down the ramp into the main concourse of the port. They followed him to a stairway that led down to the main lobby floor and there Jessica stopped again. She came to an abrupt halt, Arden almost colliding with her.

"What. . . .?" He started to say, then saw what she was staring at. Doc came up beside them and he too followed their gaze out into the port lobby.

Against the far wall, in front of them, with the two main doors flanking it on either side, stood a towering model of a tree. It reached from the lobby floor, four stories up to the ceiling of the domed lobby. From the balcony where they stood, they could look directly across at about the midpoint of the branch-area; more than half the tree towered above them.

The tree was artificial; a giant model of the smooth trunked conical trees

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

they had seen being worked out on the field. But this one was not a young tree, neither was its trunk smooth-barked. The bark was rough and seamed with crevices and the branches were thick and heavy. This was an old tree. They knew without asking, this was the Giant Tree of *Kyle Murre*—or rather, a model of it.

"God!" Arden said. *"We're going to climb that?"*

Nobody answered him. They were busy studying the giant model, noting the colored lines that marked the major climb routes up its trunk, the twinkling lights that were keyed to the slanted information board at its base, marking sites of importance, pitches that had been named, or important climbs that had been made famous by their difficulty. And deep within the minds of each of the three was the slowly growing realization of the size of this towering model. Four stories of artificial tree to represent what? The greatest single climbing experience in the history of a sport, long used to superlatives. An absolutely unique climb, requiring top skills and master techniques. A climb for which there was no base camp slope, no easy ridge-line approach. A maximum-effort, full-record climb on any part of the marked trails, colored so gayly on this monster model.

The Giant Tree of *Kyle Murre*.

"What's the scale?" Doc asked finally, trying to absorb the idea that what he was seeing was only a model.

"About fifty to one," Leighton answered solemnly. Even his bright spirit was awed by the lobby model. "Of course, the scale is artistic, to display the climb pitches, not exact. And no attempt was made to show all the branch development."

"Forty-two hundred meters," Arden quoted from the presentation pamphlet. "And all vertical-face climbing. Wow!" The sparse bankroll in his kit meant nothing now. He was here, and this climb was more important than any sum of money he'd spent getting here. With a climb on *Kyle Murre* in his log-books he wouldn't have to spend his time leading rich ladies and under-muscled executives up low-altitude rocks. He could claim any job he wanted . . . *Any kind of a Kyle Murrian climb. Even a little safe climb.* . . . Timed to the thought, as it came into his head, Arden began to look up the height of the model; high into the ceiling of the lobby; looking up at the top of the Tree. *The Top of the Tree.*

"Two days," Jessica said. "Two days to do nothing but look at that! We might just as well start off planning a climb to the very top. You could never live with anything short of that."

Doc didn't say anything. He seriously wondered if he could climb to the top, but he was absolutely sure that he would never make a shorter climb and plan to come back again. There weren't enough years left in his life for two such climbs. He too was looking at the top branches of the Tree, trying desperately to tell himself that he was only looking at a model. A

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

model. The fear he felt was totally irrational . . . he wouldn't be climbing the model.

Four stories high, the lobby model dominated their thoughts and emotions. Outside, fifty kilometers down the coast, the actual Tree waited. They had to climb *that*.

The Giant Tree of *Kyle Murre*.

Colonel Estaban put the Tenth Brigade's mobilization order in the traffic clips of her communication officer and said: "Send it out yourself, Martan: Secured frequency. Then lock the original in the safe."

"Aye aye." The Captain touched his keyboard to ON, and began typing the coded order onto his screen. Colonel Estaban collected the five officers of her Special Team, and went back into her office.

Her desk, here at Tenth Brigade HQ, was the end of a conference table. On it she could work alone with plenty of room to spread the paperwork. Using communications links and a computer keyboard/screen she could call in any number of staff advisors and use the office for a meeting or as a command post; as the work of a Mountain Marine Brigade required. She saved hours of her own time by not going to other meetings, and when problems came to her office, the men bringing them tended to arrive in conference room bunches. They efficiently set up their own Task Force Teams at her table just by taking sides in arguments.

The right wall, midway down the length of the table, held a wide display screen for the computer output and the projector system. The other walls were bare except for a plate-rail frieze of trophy weapons mounted above head level around the room. There were edged bayonets, explosive fired guns, a broken sword, and, at the room's far end, two meters of iron lance point with a torn pennant. They were Colonel Estaban's battle trophies: her personal collection, not the Tenth Brigade's. They were all very expensive items that had been used to attempt Dorothy Estaban's life at one time or another. Some of them were gifts from Marines who died taking them away from the owner; some she'd collected herself; one or two still had debts owing on them.

She kept them in her office to remind her—and her officers—that she'd lost men of the Tenth Brigade buying those trophies. Their price was very high indeed.

She shook her head, putting away the drift of memory that the glance around the oiled gleams of the weapons had produced and let her disciplined memory bring up the facts she wanted to cover in the meeting that was scheduled.

A speaker behind her hissed softly and said: "The officers have arrived, Colonel."

"Very well. Ask them to step in please." Colonel Estaban spoke casually to the air. Her executive officer had pickups for any sound in this room. "Then set, *Conference in Progress* on my door. Interrupt with no

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

calls lower than Priority A."

"Aye aye."

The door opened and Captain Terrant came in, followed by three fem-Lieutenants; Cindy Synger, Geri Dawson, Erda Wildasen; and the Naval Intelligence Officer who had come down from the Admiral's staff with the *Kyle Murre* papers. He, the NI Commander, was wearing a battle-dress jumpsuit and Colonel Estaban smiled a bit as she noticed that he'd ironed it to a neat smoothness.

"Come in," Colonel Estaban said, leaning back and picking up her kaffe cup to indicate the informal beginning of the meeting. "Kaffe service is open. Not exactly, 'Liberty Hall'; we're still aboard the Base, but the *cat's on the roof*. Sit down and relax, all." She meant that no one would hear them but the cat on the roof and what they said would be forgotten after they left the room—a Brigade formula for in-house secrets.

"That means you too, Commander Shroeder," she said. "While you are wearing Brigade Maroon."

"Of course," the Commander said, sitting down with his kaffe. "Good place for cats, roofs—or trees."

"You should ask one of these ladies to come back to your quarters tonight and show you how we press the uniform under a mattress. Using an iron is bad form and makes you stand out. My Marines will know that you are a Navy spy—from scuttlebutt—but there's no use telling them that you're ignorant."

"I didn't intend to spy, just to avoid questions from outsiders. What else would give me away?"

"You don't walk right, Commander," Lieutenant Wildasen said. "When you see all the gear a Mountain Marine carries to climb with, you'll understand. *'Flat feet, bowed legs and a broken back; a Marine don't sleep in the sack—HE CARRIES IT!'* "

They all chorused the last, *"HE CARRIES IT!"* and laughed together at an old boot camp joke that was forever funny.

"I'll help you press your uniform, Commander," Lieutenant Wildasen said. "Your place, after chow. Takes some time to do it right at first, but we'll use a little heat."

"Ah, yes. Very well." The Commander wasn't certain about what was happening to him—here in the Colonel's office—he was either going to get his pants pressed, his leg pulled, or Lieutenant Wildasen. The odds-bet on sensual eroticism were better than most gambling palaces set up. *Hell, think Navy! . . . Could be a whole lot better . . . Might even get his pants pressed, either way . . .*

"My place, after chow," he said with as much voice control as he could manage.

"Good! Now that Commander Shroeder's uniform has been taken care of . . . " Colonel Estaban raised her voice slightly to cut into the chatter. She further claimed everybody's attention by turning on the projector screen and gesturing toward it with her kaffe cup. "I'll speak a little business and tell you why we aren't spac-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

ing out with the Brigade.

"Take a look at . . . Hold one tick, and . . ."

The projection screen was blank. Colonel Estaban turned away from the table for a moment and put three I.D. discs into the projector. The color holograms appeared in the wall screen and rotated slowly. Each was identified by name and standard descriptive coding.

"Our assignment, Gentlemen and Ladies," she said. The Mountain Marines still used the old chivalry for fem-officers. "Is to contact these three people and present them each with an invitation from the Taansvaal Sporting Club."

"Ahh Ahh!"

"*Kyle Murre.*"

"Wow!"

"Lucky S . . ."

"After which," Colonel Estaban went on, over their exclamations, ". . . After which we will shepherd them aboard the transport for *Kyle Murre* at Throntaiss Port. Later we can rejoin the Brigade in space.

"Now, the briefing packets. First: Jessica Van Horn." She indicated the hologram of the only woman of the three persons displayed on the I.D. screen. "Lady Van Horn is heiress to the Van Horn Shipyard fortune. She operates a highly commercial and vitally necessary business in three solar systems . . . Van Horn Graving Docks are licensed in operation in perhaps a dozen more. Both Naval and our own Marine Repair Depots utilize her equipment; under contract and by development patent license.

"In addition, if that were not enough, Lady Van Horn in her own right has developed a gem trade within the . . . Well, let it go at three solar systems, too. Her income is only limited by the internal rules of the Gem Trading Association. That organization values her membership and her life, as much as her cargos of gems. They are partially responsible for getting the Tenth Brigade put on this job."

"Bodyguard for Lady Van Horn?" Lieutenant Synger asked.

"Ahh . . . Yes. In a way; among other things," Colonel Estaban said. "Lady Jessica Van Horn, because of her status is entitled to special . . . protocol . . ." She let her voice die away without finishing. Then with a positive movement of her arm she separated out a clear envelope, holding papers, cards and other items, from the pack on her desk; separated it and set it to one side.

"Second," she continued, lifting the same hand to point at the older man on the I.D. screen. "Doctor Elden Barr. His doctorate is in anthropology and he is presently at work on his field site on *Muggedore II*. That means I'll want a combat team from one of your A companies, Captain Tarrant, and a good sergeant. I don't expect any fighting, but there will be some tricky climbing. Dr. Barr's dig site has a notorious reputation, I understand."

"Aye aye, Ma'am. What sort of terrain?"

"Desert rock. There are maps and

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

photos in the briefing package. Standard issue equipment should be sufficient, at your discretion." She passed the briefing packet—another clear envelope—down the table to him.

"Three," she picked up the third packet and smiled. "Now the fun part. *'The Fem-Marines get the best jobs in this Brigade.'* "

The three fem-Lieutenants looked at the last picture on the screen and smiled a little stiffly. That phrase was barracks humor and it meant the opposite of what it said—usually.

"You three will have to toss odd-coins for the job. One of you gets to play a rich playgirl who is learning how to climb mountains. He . . ." She pointed. "He will give you lessons.

"Arden Barth. Professional guide; fees moderate and flexible. He is interested in women, has no permanent attachments, and has never made any. No record of blackmail and we turned up at least six opportunities that he could have exploited.

"Sex is not a part of this mission and has never been a problem with any of Barth's climb parties. By report, he is quite serious about his climbing. If you want to play, it will be in a warm, comfortable lodge, not on a rope belay.

"Also, he has never raped anyone. He seldom has to. His problem is usually saying, '*No*!' first. Understand?"

"Yes, Ma'am."

"Understand."

"Aye."

Then will you do a little odd-coin and I will get on with this. Let's see who goes mountain climbing."

Three large coins flashed golden in the fluorescents. Lieutenant Dawson said; "Crowns!" She called quickly before the coins hit and spun on the table.

"Crowns it is, Geri," Colonel Estaban could see that Dawson's had spun to a stop, odd coin of the three, Crown up as Geri had called when she challenged the toss. The job wasn't worth the daring, but maybe lieutenant Dawson would do the job. "Crowns it is," Colonel Estaban said again. "You're my volunteer." She passed the last data packet down the table. "Here is your packet, Geri. Commander Shroeder and his NI team will give you your own personal details for your cover background at another meeting—before you leave this afternoon.

"For the benefit of the rest of you: Lieutenant Dawson will pose as a sportswoman who has enough wealth to hire Arden Barth to take her on a guided climb, and who is also a serious climber. Serious enough to enjoy it, anyway."

"Oh fine. Some duty. Extra hazard in the bars."

"How about that coin toss? Once more, with good coins?"

Both of the fem-Lieutenants were joking, although they both wanted the job.

". . . She will contrive," the Colonel went on, ignoring the side-play. "Lieutenant Dawson will contrive reasons to enjoy the climb so much that . . ."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Oh, no!"

"En . . . joy!"

Both Lieutenants were shaking their heads in unison, a deliberate comedy act. Commander Shroeder was grinning openly at them.

". . . Enjoy the climb so much," the Colonel went on. "That it will seem entirely natural for her to send Arden Barth an expensive gift."

"Not too contrived, Geri," Lieutenant Synger said. "He's not an idiot."

"Aye aye," Geri agreed, grinning.

"The gift," Colonel Estaban said. "Is a little special and the whole reason for your charade and mission, Geri."

She pulled a wooden box around in front of her and centered it in the width of the table. The sight of the box, the rich warmth of the wood, stopped all the joking and returned everybody to a serious mood. There was only one kind of wood that polished to that gloss and at the same time gave off the depth of flame-colored grain patterns. The box was made of Kyle Murrian wood. Easily the rarest and most expensive wood known.

"Now. I want you to take a look at what all this running around is about," she said, opening the wooden box. "We will all take a good look. This is about as close to one of these as any of us will ever come on Mountain Marine pay."

Moving her hands slowly, she drew out a silver foil. It was a rectangle twenty by thirty centimeters, engraved with lettering, and decorated so as to turn it into an invitation.

"Just an invitation to come to *Kyle Murre* and be a guest at the Lodge," Lieutenant Synger said, reading the words. "Nothing about climbing any . . ."

"No need to," Commander Schroeder said. "Anybody who gets one of these knows that there is only one thing of importance at the Lodge for guests. And there is no mention of the all-expenses-paid policy, or the fact that this little silver chit has to be paid for like any other hotel reservation. Cash in advance. *Kyle Murre* has steel teeth in their silver cards."

"So. This *is* an expensive gift." Lieutenant Dawson said, re-evaluating what she was being asked to do. "But not the whole free ride. Just a present."

"That's all," the Colonel said. "About a year's pay, nothing important. You can pick it up here when you have finished your final briefing. Commander Shroeder will issue it and you sign a receipt. By the Book.

"You may use this room to study your briefing materials . . . Captain Tarrant, you also. Or you may use the officer's club. Your quarters have been packed and will be mobilized with the Brigade. Your next appointment for briefing is in each of the packets.

"Lt. Synger, you might stay and staff for Geri, if you will. Lieutenant Waladan, please see that Commander Shroeder gets anything he needs. I will meet with you all once again after the completion of your contact." Colonel Estaban stopped speaking and was

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

silent for a moment. There was a Tenth Brigade superstition about goodbys and goodluck so she just let the moment lengthen, then drank off the rest of her cold kaffe and slipped the Van Horn data pack into her uniform pocket.

"And now," she said. "I am due at Adjutant's Review. Captain Tarrant, will you have the Sergeant and his team report to me after lunch, or as soon as you have transport lined up."

"Aye aye, Ma'am."

"I'll leave you to it, then." Colonel Estaban got up and as the rest of her officers rose, she completed the formality. "Gentlemen and Ladies." She turned away from her desk and walked out the door.

Commander Shroeder picked up the Kyle Murrian box. He had already restored the silver invitation. "I'll be in this office again from Noon through hour two," he said. "Your schedules should let me issue these foils to you right after lunch. See you at the briefing." He followed Colonel Estaban, taking the Kyle Murrian box with him.

Captain Tarrant and Lieutenant Dawson began to open their briefing envelopes. Captain Tarrant rather self-consciously aware that none of the fem-Lieutenants had left the conference room. They all three seemed to be settling down for a detailed look at the assignment that Geri had drawn. Coin-toss or no, Geri was going to get a lot of help on this job.

Then the details of his own briefing packet began to absorb his attention and Captain Tarrant realized that he was going to have some help on his assignment too. The Colonel was going to take the combat team down to *Muggedore II*, herself. Captain Tarrant was ordered along as, Number Two . . . That meant everything had to be right up to the mark. He'd have to pick a damn-good sergeant . . . *The more he read about this Muggy Door place of Elden Barr's, the worse it sounded.* . . . And the Colonel wanted to sneak in the back way . . .

"Hell," he muttered. " '*Flat feet, bowed legs, and a broken back; a Marine don't sleep in the sack—HE CARRIES IT!*' "

2

For Elden Barr the trip to *Kyle Murre* had begun on Mygradorre III. There were two things on Muggy Three that were Doc's business. One thing was the cliff dwelling ruins at Collapsed Plain. The ruins were a ten kilometer cliff city, long deserted and built by an unremembered tribe in Mygradorre's prehistory. The other thing was hard-rock mountain climbing. At the Collapsed Plains ruins Doc would handle both things at once. The cliff city was located five hundred meters up the sheer face of the granite cliff and all approach to the work had to be by exercise of rock climbing skills. Most of Doc's senior diggers were recruited rock climbers who had learned the archeology and anthropology necessary to do Doc's work after they had proven that they could climb up to the site. Doc Barr had been working the dig for five years uncover-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

ing rooms, streets and communal cook fires dug into the native cliff. The work was agonizingly slow, but the ruins were recognized as Doc's private preserve. Nobody else wanted to make the treacherous climb up the cliff badly enough to take the job away from him.

Doc, however, had found a rare blend of enjoyment combining his two life-long skills and readily made the climb up to the ruins every morning that he was on the dig site.

This particular morning, he was halfway up the cliff face working along a stepped ledge that angled steadily to the right and upward. The ledge was a series of natural faults in the rock-face, but ages ago it had been improved by the cliff dwellers; chiseled to an inward slanting path by stone tools and worn smooth by generations of passing feet. Whoever, or whatever, had built and lived in the ruins was a puzzle Doc Barr had yet to solve, but they had climbed the cliff by the same route Doc was using, and traversed this same ledge—year after year, generation after generation—until, one year, they had left, forever.

They hadn't used any kind of hand holds, though. Doc had been forced to rig his own safety ropes, driving permanent bolts into the rock and setting them with Perma-stone the same way he had anchored his pitons for the three pitches up to this ledge. He, or some other anthropologist, would be working on this site for a lot of years before any thought of restoring the ruins as a tourist point would ever come up. But Doc was still sensitive to the, *purity of the rock*, in the canyon. Setting permanent bolts and pitons was far better than letting the rock get scarred and damaged by, *everyone taking his own route*, up the cliff, bashing and chopping new piton locations because an old crack had been broken so badly that it was unsafe. Doc had seen more than one climb, Hawk's Needle, on Cybbelle IV, for example, ruined forever in one season. The upper scarpe had actually been fractured by rain/ice pressures in piton-expanded cracks and had torn free to fall.

He didn't want to see that happen in Collapsed Canyon. There were some great short climbs along the cliff wall. So he had set permanent pitons and there was a sheerlegs crane at the dig site for lifting supplies and water.

Doc had been moving along the ledge traverse, and now, at the high end, some two hundred meters, below the cliff dwellings themselves, he was preparing to lock his Jumar clamps on to the hanging rope for the final climb.

The cliff at this point was unclimbably slick with an age-old overlay of something similar to water-lime. It wasn't exactly water-lime—there was a high percentage of tungsten—but the native rock was long-glazed with a translucent shell that defied pitons or any other attempt to cut hand and foot holds.

The cliff dwellers had climbed the slick wall with a series of pole-trees. Doc's monograph on the socket holes

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

and the top-notches had been his first publication on the Collapsed Canyon cliff city. The poles were long gone, decayed and dropped to the canyon below. Now, Doc made the final climb up an anchored rope using Jumar clamps and a safety line.

He'd shoved his first clamp up the line and locked it with his weight when the shower of pebbles scattered past him.

Pebbles? . . . . on this glaze pitch?

Doc had ducked, automatically protecting his head with his arms, and flattened against the rock. Now he looked up . . . And saw two men rappelling down the cliff above him. They came down fast. In seconds they were level with Doc's position.

One man dropped to Doc's level, locking his ropes to stop effortlessly and holding himself with a one hand belay through his clip links. The other hand was aiming an automatic rifle, slung from a neck strap and laying across his arms; it was aimed directly at Doc.

The second man dropped on down to Doc's right and went down below to where he couldn't be seen. That is, to where Doc couldn't see him without changing position.

"Just hold it, Doctor Barr," the man with the gun said. "We aren't here to hurt you. The Colonel wants to see you. That's all. This . . ." He lifted the gun barrel two centimeters. "Is just to put a little hurry in the argument.

"You set, Mark-o?" This last was to his partner. Doc had, *held it*, locking his Jumars and bracing his legs against the cliff, when he saw the gun. Now he saw that the man beside him was in uniform. The maroon *Anorak* and climb pants, the beret and regimental badge identified him as a Mountain Marine. A conclusion that should have been obvious from where he was. Only Mountain Marines would have sent two men to pick him up from the middle of a vertical, class six pitch. Any other military unit would have met him at his camp on the canyon floor, or sent him a letter summoning him to their headquarters. Mountain Marines liked to do things the hard way, with their own kind of flair.

"Jumar on the rope," the lower man said. "I got him covered. You go ahead.

"Don't you move a finger, Buddy!" This last was obviously to Doc.

"What's this all about?" Doc said, carefully not moving. "What do you want?"

"We don't know nothin'. You don't know nothin'," the low man said. "So shut up, Buddy."

"We'll go on up in a sec, Doc," the first Marine said. His rifle was hanging free on its neck strap, now, while the Marine attached climbing Jumars to his tight-line. The Jumars were the self-locking type, as good as Doc's own, attached by web straps to the Marine's safety harness. That meant his body weight would lock them on the rope automatically if he let go—to grab the rifle and shoot, for instance. With that gear—and Doc felt sure

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Mountain Marines were trained to use it—the Marine could climb one handed with his finger on the trigger, if he had to. Doc was very careful not to move.

"OK, Doc. You first. Just climb straight up. Nice and steady. We'll be right with you."

Doc nodded and began to move his Jumars up the rope. Push and lock; push and lock; he worked his way steadily up the rope, walking his feet against the cliff face.

The Marine on his right climbed up past him, using the same technique, but with more speed and strength than Doc put into his climbing. Ten meters above Doc, the Marine stopped, casually centered his rifle and waited until his partner climbed past Doc on the left and leap-frogged above their position. The two Marines kept Doc guarded in this way, one above him and one below him, all the time it took Doc to make the two-hundred-meter ascent. It was a thoroughly professional performance, coupled to an offhand climbing skill that Doc would have admired; if the constant surveillance of the two automatic rifles had left him any time for admiration. As it was, he concentrated on his climbing, not quite sure whether a slip or a mistake would be allowed by his dangling guards, or interpreted as an attempt to escape.

At the top of the climb hands grabbed his arms and pulled him up onto the shelf of the cliff dwellers main cave. His two guards hung on their ropes until he was on his feet. They rolled into the cave without any aid and began coiling their ropes. They started to pull up Doc's two ascent ropes also, but a voice out of the back of the cave said; "Leave his ropes! Somebody sees they're missing they might come looking."

The ropes were dropped back to hang free and the two Marines that had come down the cliff collected Doc, handling him by his arms and elbows and walking him over toward the doorway of the big central room. The other Marines settled back, walking to positions they'd had before Doc climbed in, and settled down to guard the cave opening.

Doc was being marched across the open floor of the biggest cave in the cliff dwelling system. He'd cleaned it out to the fire pit floor years ago. But this cave was a front yard. Used for entry to the rest of the cave city, and for some ceremonies. The cliff dwellers had kept it clean too. Most of the meaningful finds, so far, had come from the walled off meeting rooms ahead. The rooms that Doc called City Hall.

Doc's crew had cleaned the dust and debris of centuries out of the main room, uncovering a square pattern of stone seats. Seats for a limited number of ruling persons, or some decision making body—civil or religious. Doc hadn't really found out yet. Since there was no obvious altar, Doc had named the room, the Mayor's Office.

Now, as Doc was taken in, the Mayor's Office was occupied by a Marine Colonel, Dorothy Estaban.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

She was seated on one of the chair stones with a field desk pack open on the stone next to her.

Colonel Estaban was tall, dark, and because she had a need to impress Doc, extremely feminine. The Mountain Marine uniform, when it's tailored to the form-fitting tightness that they prefer, is admirably designed to be effective—on a woman.

Doc was impressed.

Colonel Estaban was seated on the Mayor's stone, the position of authority for the entire cliff dwelling, either by virture of a good briefing or an instinct for command that told her how to find the focus of power in any room.

"Good morning, Doctor Barr," she said. "Please be seated. We have some business, you and I.

"Thanks, Sims; Marko," she said to the two Marines. "A good fast climb. Get some chow and see where Sergeant Miklean wants you on the perimeter. Dismissed."

"Aye, aye," Sims said. He and his partner left. He didn't salute. Mountain Marines didn't use the salute on combat drills. They were supposed to have both hands full; on ropes or guns. Like most hard-rock climbers, Doc knew all about Mountain Marine's traditions as well as their skills.

"My apologies for bringing you up here in such an odd manner." Colonel Estaban turned her attention back to Doc. "But my orders were to contact you with some degree of secrecy. This seemed to be the best place to do it. If we got caught at it . . . if anyone saw your abduction . . . the whole thing could be passed off as a joke—an overzealous training exercise on your cliffs."

"It was, as you say, overzealous," Doc said, "Why was it necessary? I'm hardly a recluse."

"As I said, a small amount of secrecy. Do you know this man?" Colonel Estaban took a hologram from her field desk and handed it to Doc Barr.

"No I can't say I do." Doc looked at the picture. "A vague resemblance perhaps, men in uniform tend to look alike. Space services?"

"No. Procyon Planetary Forces. Brigade Captain FitzRoi. You don't need his service record. Oh, you recognize the name?"

"Of course. He's one of the two hundred Master Climbers on the Unlimited List. I've never seen him in uniform, but his name is well known."

"You have never climbed with him, then?"

"No. But then you probably have my climbing record as well as his. Did a squad of Mountain Marines kidnap him off some mountain, too?"

"No hardly," Colonel Estaban laughed. "But we are interested in Captain FitzRoi. I've been ordered to tell you about certain intelligence reports. . . ." She stopped for effect, then went on. "We believe that Captain FitzRoi is being sent . . . assigned to provoke riots and provide an incident that will give the Procyon Planetary Forces an excuse to move in and occupy a planet that we have been

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

very carefully keeping unoccupied.

"Captain FitzRoi is being sent to *Kyle Murre* as the first step in an attempt to break the isolation of the planet."

"*Kyle Murre*?" Doc said, puzzled. "But there's nothing there but the Tree. It's not fortified and it's not a trade planet."

"No. But it could become a trigger planet for a whole series of intersystem fights. Not many people know enough about *Kyle Murre* and its Tree to consider that they are important."

"Important! Why it's the premier climb of all the Record Climbs. It's absolutely unique."

"To you and a few thousand mountain climbing aficionados, yes. But the rest of civilization hasn't taken the time to hear about it.

"But there's more. Here." Colonel Estaban slid another hologram from her field desk.

"Jessica Van Horn." This holo Doc recognized because he was thinking about top flight mountain climbers. "She's very good. Is she part of FitzRoi's plot?"

"No. Just a complication. She may become part of the incident. Jessica Van Horn has recieved a climbing permit from the Taansvaal Sporting Club. If FitzRoi's incident comes off with Lady Van Horn on the planet, we will have pressure from her business and financial interests complicating the picture. We may have a very serious problem indeed. She must have the best protection we can give her."

"So that's why your Mountain Marines are in the act," Doc said. "You're going to send a squad to climb with her . . . and be on hand for protection. Good idea."

"Not exactly. My Marines are good. I've got some fem noncoms that could climb right beside her. But no one has the accumulated climb-points to get a Taansvaal Sporting Club permit. You don't do much sport climbing in the Marines."

"Oh. So that's the reason for kidnapping me," Doc said. "At this point, I'm expected to volunteer to dash madly to *Kyle Murre* and save the damsel in distress, eh?"

"First I expect to impress you with how much I know about your personal life, make some terrible threats, and end up bribing you. Volunteering takes all the fun out of it."

"I wasn't volunteering. Impress me." Doc wasn't quite sure whether the Lady Colonel was laughing at him or serious.

"Very well. Open your wallet and take out the gold card in the third pocket from your money clip."

Doc did so. The card was his senior Membership in the Vertical Rock Climbers Association: The gold color signifying the number of record climbs he had completed. The card was actually a gold alloy sheet engraved with Doc's achievements on its back surface.

"Well, Colonel," Doc said. "Your records would show that I had this award. . . . but knowing the exact pocket in the wallet. . . Impressive."

"Now the threats." Colonel Esta-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

ban gestured around the room. "I am deployed throughout your ruins in company strength. This is an excellent defensive site except for one lack—water. A condition which undoubtedly caused the original inhabitants to vacate the site. A military observation, Doctor, not an anthropological one.

"Militarily, then: If you do not work with us. My battalion will begin wargames exercises along the cliff at Collapsed Canyon. The Blue Army will attack my position here from both ends of the canyon. I will defend this cave network. The Red Army, my Second Brigade, will mount a counterattack to relieve my position before we all die from lack of water. Neither side will be using live ammo out of consideration for the ruins, but my defending forces, and hopefully the units of my rescuing Red Army will occupy these buildings you have . . ."

"Never mind." Doc felt himself growing angry. "The threat is real enough. You'd ruin years of work. That many men moving through the sites I've worked and tramping over undocumented areas. . . . The site would be ruined for any anthropologist. Ruined for years. I admit your threat."

"Would you like to see the bribe?" Colonel Estaban said, leaning back slightly to display her figure even though she was confident that Doc Barr would never believe that her body was part of the bribe. It took a certain kind of male macho to consider the idea of raping a woman Marine while surrounded by her armed combat team. Doc Barr wasn't inflicted by that sort of insanity. She was also confident that the threat she had described meant nothing. If Doc wanted to refuse her; he would walk away from those ruins and never look back. He might try to kill anybody who stopped him, but the ruins wouldn't affect his decision once he'd given them up. Doc Barr had *that* kind of insanity. There were some men you could force . . . Elden Barr wasn't one of them. His face had confirmed the data in his file. She had men like him in her battalion; Marines half his age and experience; men with literally no breaking point.

She leaned forward, took a twenty by thirty centimeter rectangle of engraved silver foil out of her field desk and handed it across to him.

Doc took the foil. He had never seen one, though of course, he knew what it was. He gave a small catching gasp of breath as he read his own name on the engraving.

"Do you know what this is?" he asked. "You command Mountain Marines, but are you enough of an aficionado to *know* just what this means?"

"Yes, Doctor Barr. I know." Colonel Estaban let her voice get softer. "An invitation to climb at *Kyle Murre* is the ultimate goal of any serious climber. You certainly have earned it. The secretary of the TSC was curious as to why you hadn't applied for a permit before now."

"I never expected . . . and at my age . . . Money just never seemed

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

to. . . ." His voice ran out and he just stared at the sheet of foil.

"Doctor Barr, forget about the threats and the bribe," Colonel Estaban said briskly. She was no longer playing games. "I was exercising a misplaced sense of humor. Forgive me. I knew you would volunteer, given the chance. This climbing permit, as much as it means to you, is just part of the job from our point of view. You can't very well protect Jessica Van Horn without a Kyle Murrian climbing permit. Consider it a reward or a vacation, if you want to, but definitely not a bribe. To us it's simply necessary paper work."

"Colonel, I'd take on almost any job you had to make that climb, and you know it." Doc Barr had his feelings under control again. "But what use do you think I'd be as a bodyguard. For that matter, why do you think Lady Van Horn will accept a bodyguard? She is a very individualistic . . . strong willed, person, according to her publicity."

"Stubborn," Colonel Estaban agreed. "You won't be going as a bodyguard. We simply want to make up a climbing party for Lady Jessica Van Horn that has nothing to do with Captain FitzRoi. We want to be very sure that there is no climbing accident, so we are providing the very best climbers to work with her. Stacking the deck.

"There will be other units to act as guard and to take care of any trouble FitzRoi tries to start. You won't be connected with that, so don't worry."

"Just go to *Kyle Murre,* and climb?"

"Exactly. Just that. We will supply all the gear . . . Any you don't have. Your climb gear should be yours, of course, not Marine issue."

"There isn't all that much difference . . ." Doc was thinking over what he'd need.

"And transportation. We'll pay all expenses. Will you go?"

"What? Oh, yes, certainly. I thought I had volunteered?"

"You did. But I had to ask formally. Colonel Estaban closed the files and put them back in her desk. "Now, I'll turn you over to my top sergeant. He'll help you with your climb planning. I'd like you to do as much of that as you can here and now, for the secrecy. The equipment can be delivered to you at the spaceport . . . Or on *Kyle Murre* . . ."

"Spaceport. Here."

"Very well. Oh, one thing more. Here is a holo of the third climber. A professional guide, Arden Barth."

"One of your agents?" Doc looked at the picture.

"No. Completely independent. He will be given a climbing permit before the month is out. One of his rich patronesses likes to give expensive gifts. We will allow it to go through. He doesn't know anything about this scheme . . . and you are not authorized to tell him about your connection with us . . . or any of the background I've given you on FitzRoi. We just thought his experience would be handy."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"How many more players have you got running around *Kyle Murre*?" Doc asked.

"Not many more. We have managed to get the Taansvaal Sporting Club to delay all other climb parties. They have no climbing classes at this time. The fact that you four will be alone in the Sporting Lodge will be passed off as a brief off-season in their usual schedule. Other people will be due in, almost immediately . . . reservations . . . Ship schedules . . . all planned out. They just won't arrive, for one reason or another. We have, I think, been most thorough."

"Then I'd better get to my planning," Doc said. "You probably have me scheduled for a midnight takeoff."

"Eight thirty-three, tomorrow morning," Colonel Estaban said. "But you will be delayed at Helm Base Port until the other two can catch up to you. There is only one direct Outstar ship to *Kyle Murre* and they won't run three trips." She raised her voice and called, "Sergeant Miklean!"

3

Colonel Dorothy Estaban didn't use ropes to rappel down the side of Horn and Mossbye's Main Division Headquarters. Instead she rode up a lift tube anonymously dressed in a business cape and skirt and carrying a brief case. An appointment pass cleared her through the corridors of the thirty-seventh floor to the double doors of the Administrative Suite.

Jessica Van Horn's office was a large room, sparsely equipped in furniture designed for comfort more than the usual office efficiency. Her chairs were padded and didn't swivel. Her desk was a wide, heavy table, empty at the moment, but providing a working surface for one letter or a complete conference. The wall decorations were dominated by a large photoenlargement of a mountaineering scene. Two people climbing an impossible spire, more a needle really . . . the top of which had room for only one man—the one standing triumphantly atop the needle. The size of the picture made the viewer part of the spectacular scene . . .

"Pardon me for staring at the . . . mural," Dorothy Estaban said. "But it is quite coincidental to my errand. Have you ever climbed that?"

"No. I'm just fond of the picture. It says what rock climbing is all about. That man's gotten up there all by himself. His partner couldn't possibly have helped him climb the last fifteen meters. Getting there took great skill; standing up took magnificent courage. And it's all his. Nobody can ever take it away, or duplicate it, or spoil it in any way. I'm not the least bit interested in doing the same thing. It's his victory. I don't even know where that rock is. On Earth Planet, in Europe, somewhere . . .

"Do you climb?" Jessica didn't mind casual conversation in this office. This was the place she came for quiet and to think out policy. Her working office was down the hall—a busy board room with computer inputs and display screens.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"I used to. I don't seem to have time for climbing for pleasure anymore," Dorothy Estaban said.

"But let me tell you why I am here, Lady Van Horn." She produced a card. "I am Dorothy Estaban. I am here as an agent of the Taansvaal Sporting Club."

"*Kyle Murre?*"

"Yes. I assume a Masters Climber such as yourself is aware of the Tree. What you may not know is that, from time-to-time, the Sporting Club extends invitations to Masters Climbers to come to *Kyle Murre* and take part in a climbing expedition." She opened her briefcase and slid out a thin twenty by thirty centimeter sheet of silver foil—literally an engraved invitation.

"I usually plan my own climb parties, Lady Estaban," Jessica said. "I frequently find a great deal of masculine . . . jealousy among climbers."

"Oh! But you carry a Masters Certification. That means, must mean you are as good as some men . . . better than most. Does masculine jealousness bother you that much?"

"Lady Estaban. I don't object to climbing with men who know they are better than I am. I do object to men who keep trying to prove it while we are belayed on a vertical rock face. They are damn dangerous. I try to avoid them."

"Ah, yes. I see. Well, the Sporting Club has put together a small climb party. They have, I am sure, used considerable expertise in matching compatible personalities—and only Masters class climbers, of course, so the level of skill will be high. You should be able to accept their invitation without undue worry."

Jessica laughed softly. "You *haven't* done much climbing have you?" she said. "The climb on *Kyle Murre* is the ultimate experience in anyone's career. The absolute tops. Once in a lifetime. Your invitation isn't the sort of thing any climber could refuse. If the Emperor of Tibet asked you to climb Mt. Everest, would you go? I have no intention of refusing."

"Ah, well. I couldn't judge. I don't know where the planet Tibet is located." Dorothy Estaban pulled some more papers from her briefcase. "In any case, this is a schedule of the planned climb and the passenger-vessels bonded for service into *Kyle Murre*. You understand, this is not a gift invitation. The Sporting Club must insist on a full fee. All expenses are covered in that one charge, however. You will not be troubled with food, drink or tip extras."

"Well, I'll be damn . . ." Jessica was astounded, then amused. The statement was the ultimate in snob appeal. A silver invitation, then pay-your-own-way. Perfect. Still, it worked. She wasn't intending to refuse. . . .

"Louise," she said into the intercom. "Lady Estaban will be out in a minute to give you a schedule. Will you draw her a check on my personal account. She will give you the amount. Then make the reservations as she directs and bring me a receipt memo when you come in with the check."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Do you want to wait for it?" Jessica asked Dorothy, "Or shall I certify it into escrow for the Club?"

"I can wait. It will be simpler. I can receipt funds for the Club."

"She'll wait. Thank you, Louise." Jessica cut off the intercom.

"Thank you for your time," Dorothy said, standing up to break off the appointment. "Enjoy your climb." She turned to leave, but stopped briefly to take another look at the photo-mural. She just paused a moment in front of the picture, looked at it, and went on out of the office.

But there was something odd in the way she stood . . . Jessica noticed that her feet were tight together and she swayed slightly. The hem of her skirt quivered as if the muscles in her legs had tensed for some reason.

A cramp? No. She'd walked out easily with no limp. Something she'd seen in the picture?

Puzzled, Jessica left her desk and walked over to examine the mural herself. The picture was a favorite of hers; the photo-blowup had been hanging in the office for a year or more—she had forgotten the details of the picture.

Jessica's eyes widened. She took six fast steps back to her desk-table and grabbed up a rectangular magnifying lens that she used to check photo-layouts. In one year of familiarity with the big photo-mural she'd never noticed that the climber on top of the pinnacle was a woman. The climb clothes were not revealing and the idea had not occurred to her—until Dorothy Estaban had duplicated the climber's stance.

Now the hand magnifier verified the woman climber . . . and—the mural was enlarged to extreme graininess . . . and the face looked very much like. . . .

"Quite coincidental to your errand, eh?" Jessica said, wryly. "So, you used to climb, did you, Dorothy Estaban? Oh, my, yes. I'd say you did. Am I going to see you on *Kyle Murre*, I wonder."

Jessica went back to her desk. Dorothy Estaban was still in the building but Jessica had no intention of confronting her with the discovery she'd made. Jessica liked secrets and she simply considered that her knowledge made the photo-mural more valuable—to her, personally. Besides, there were things to do to get her business affairs in a condition that would let her leave for *Kyle Murre*. She was definitely going to make that climb party. Definitely.

4

The Taansvaal Sporting Club Lodge existed as a base for climbers—climbers intensely interested in climbing. So the routine indoctrination of guests began with a climb-meeting.

Arden Barth, Doc Barr, and Jessica Van Horn sat comfortably in padded chairs in the TSC briefing room. The room was richly toned and carved in Kyle Murrian wood panelling. The floor carpeting was deep and sound absorbing. The briefing had been planned as a luncheon meeting, food was served impeccably on chairside

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

tables, while the Lodge staff had a presentation display set up on a small dais. While the guests ate, the staff presented a detailed discussion of the various climb routes.

FitzRoi was there too, but he was sitting alone.

Doc recognized him at once from the hologram he'd seen. He felt sure Arden and Jessica would know who the man was. FitzRoi had set himself up in a focus-of-power position that was just as strong as that ancient Mayor's council room back at Collapsed Canyon.

The placing of the chairs was seemingly random, focused generally on the small stage, but the fact that Arden, Doc and Jessica had travelled together, and knew each other, naturally made them feel that they should sit together; a group of three compared to FitzRoi's solitude. It was evidently an appearance that the Captain also wanted to enhance. For one thing, he'd arrived early, was already seated and eating when the others arrived. Secondly; he'd acknowledged the introductions by leaning back, cradling a cup of kaffee near his mouth with both hands and saying; "Sir. Sir. Lady" to the introductions. He added a short formal nod to each of them. It was polite; micrometrically bordering insult, but polite. His actions did reinforce his focus-of-power, however, by placing a physical distance between the group and his position. FitzRoi won the first minor battle of dominance.

The three others selected a group of chairs together at some distance from him and thereafter focused their attention on the stage and the club presentation.

Leighton was running the presentation. He had a vertical chart of the Tree with colored strings marking the major climbs. Leighton knew the climbs from long association with climbers who had gone up the routes and brought back their reports and anecdotes. He probably hadn't climbed the Tree himself, not even in the early days when he'd first come to *Kyle Murre*. He wasn't the climbing type, but he did have a talent of putting other people's experience together and passing it along. His maps were clean and concise; meant to be remembered. The kind of climbing that they were going to be doing would all be vertical-wall stuff. There would be no convenient place to stop and read a map.

The Club, or the climbers who had gone before, had given the various areas names—easily remembered names. Cave of Winds. Seven Steps. Checkerboard. Brickwall. It was a common practice on rock climbs. Doc found it interesting; the way the practice had been applied to a Tree. It was notable that the names had been selected with a minimum of vegetative cuteness, or arboreal connotations. Men who climbed the Kyle Murrian Tree were serious about the sport.

Leighton had a Kyle Murrian helping him. A tall native dressed in a bright yellow climb-kit, the uniform of the club guides. He was Leighton's

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

expert on items of equipment, pack weights, ropes, and planning schedules. He sat to one side, behind a small, rollable frame hung with ropes, clip chains and various items of gear. Leighton deferred to him when there was a question about how much or what kind of equipment be used.

Arden began by paying more attention to his lunch than the climb-presentation. He felt a certain professional sophistication. He'd given enough of these preclimb briefings himself, to unskilled types and to good climbers alike. Most of Leighton's opening phrases were familiar noises. But, as the little staff-man went on, expanding the climb routes and bringing out charts and data panels to cover rations, rope lengths needed, etc., Arden gained respect for him. Leighton—the TSC Club—had seemingly analyzed every aspect of the possible routes up the Tree. They had an incredibly efficient system of data breakdown. Leighton didn't have to shuffle paper to come up with the meter lengths of climb from Cave of Winds to High Tube by way of the Seven Steps route. It was clearly marked on the route map. Further, he had correctly keyed lists showing the food required for that section of the climb. . . .

Arden's mind drifted back to the last climb that had brought him here, one Geri Do Rohnnoh and her apparently unlimited credit balance. Geri, and the good, solid little climb up Mor Aben on Sultain IV. Solid rock above the snow lime and thick breathable air. Geri had climbed well. . . .

Arden checked his belay ropes and signaled Geri to go on up past him. He watched her climb, checking to see if she was tiring, but he could see nothing wrong. He wasn't really worried. This was the last pitch. The girl would climb up on the flat rock top in a moment and she would be on top of the mountain. There was a place to rest up there, then they could start down.

Geri had checked.

"Try your left," Arden said calmly. "See the place? You can go up there."

Geri kept on climbing. She reached the final ledge and levered herself over.

"I'm on a wide ledge," she called. "What next?"

"There should be two permanent nut-loops up there. Find them. Tie your safety line on one and clip my climb line through the other so that you can belay me as I come up. Find 'em?"

"Oh. Yes. There. I'm tied on."

She pulled the slack out of the climb line and called; "I have you. On Belay!"

"Climbing." Barth had rushed her into working with the ropes. He wanted to get up to her before she discovered that she was actually on top of the mountain. Strange things happened to people when they stood on the last piece of rock with nothing but sky around them. Solid stable citizens who would never think of suicide

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

sometimes found an irresistible urge to jump off the top of mountains. Barth never got that explained to him.

He took a Psycometrician up Tell Ortize once, but the man didn't experience any sky diving symptoms. He did get what he described as full mechanical sexual responses, but he wouldn't say whether it was the mountain or the ropes and chains that caused them. Later on the Psi,D published a very technical paper on the sexual symbology of mountaineering and sent Barth half the royalties and a computer printout of the whorehouses on Ortiena III. Barth knew about seven of them, but the other thirty surprised him.

"This is the summit, isn't it, Arden," Geri said when Arden came over the lip of the ledge. Her eyes were bright and wide, but she held his balance steady by a tension on the rope. It was a trick he hadn't taught her, but an obvious one; Geri was learning fast.

"Yes. We're on top. The record plate is over to the right, some place. You can impress your log book and I'll sign my chop.

"No. Don't unclip! This rock has a three degree slope. It makes your balance tricky. You keep the safety line on."

"Can I look around?"

"Surely. That's what you're here for. Stand up slowly and don't move your feet around. You'll be alright."

He sat solidly on the rock, ready to catch her if she lost her balance, but not helping her in any other way. Geri had paid all the bills for this climb, but Arden was adding something extra she may not have paid for. He was trying to give her some of the feeling of climbing. And she had to get that for herself.

His job was to guide people on these climbs up the mountains and he had several tourist trails and party climbs. When he found someone who really enjoyed climbing and was good at it, or could be taught, he added a record climb up here to the summit. The summit plate imprint was official and quite likely to be the first of many in Geri's log. Arden was a good judge of climbers and the mountain-bug bit quickly. He always let his master students do all their own climbing on these summit trips, including the final bit of standing up on top of everything. This was often a very critical test in itself—some people couldn't hack it.

"You can see the whole world," she said repeating a phrase that had been said on top of every mountain ever climbed by mountaineers before her.

"Yes. Whatever there is to see. It's all there; spread out before you."

"That's right," she said turning slowly. "There's nothing this high except the sky." She laughed at the words. "Rhyme. Does everybody get silly on top of a mountain?"

"I don't know. Ninety percent of the world never gets up on top of any mountain—this or any mountain."

"Deep for a guide," she said. "Have you taken many women up on top of a mountain?"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Now, that's deep for a woman."

"No it isn't. They all asked that didn't they?"

"Yes."

"Do you know why?"

"I don't think they did," Arden said. "I know why I might. It's being alone. Nobody can stand being alone for very long. Some people can live alone in a city for years, but up here—standing on top of the world—you can be alone in an instant. These mountains don't care about people. You can die, or yell, jump or sit here. The mountains don't give a damn either way.

"If you need people suddenly, in seconds, most people think that's sex. A person's familiar with sex; not with the power of being alone."

Geri stood for a minute looking around again at the valleys and gorges below, the hills beyond, and the shimmering valley in the distance. Then he saw her head come up, her eyes scan an arc of the cloudless sky. She had been standing upright, erect and balanced easily on the sloping rock for ten minutes now. A remarkable record for a first time.

"Do you want sex with me?" she asked. The words were clear, but she was still looking at the sky.

"Not up here," Arden said. "Later at the hotel, after dinner, with pleasure. But not on top of a mountain."

"Oh?" She looked at him, this time. "What makes you immune from being alone, Arden Barth?"

"I know about those mountains off there," he said, pointing. "The Somber Range. They are higher than this peak."

The woman turned, looked at the distant peaks for a long moment, then turned back. With one smooth coordinated movement she sat down, cross-legged on the rock.

"Arden Barth, you're wonderful," she said, her voice was bubbly with laughter. "Don't be so serious, man. You said just the right thing to get me back down. Whoo-hah! That was a wild sort of an ego thing. I've never been on top of the world before. Thanks for saving me."

"Go over and get your log book organized," Arden said. "I didn't save you from anything. The next time it happens you'll know what it is and can enjoy the thrill. There's nothing quite like it."

"The next time. You mean. . . on top of any mountain?"

"Uh huh. The higher the better, but even the little ones are perfect. That's why I keep doing it. There's surely no money in it."

"Hoy, you wonderful man. I still want to do something wonderful for you. What's the highest mountain there is. I'll get the money and we'll climb it together. What's the best one for getting this . . . doing-something-nobody-else is doing feeling? Huh?"

"*Kyle Murre*. But it's not a mountain. And you couldn't go, sorry. You have to climb a whole list of other stuff first before they'll let you."

"Masterpiece stuff, huh? Could you?"

"Yes. Go get your log printed. We

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

have to start back now."

Arden Barth didn't get his dinner date, but he hadn't really expected to. His philosophy about such things was orthodox fatalism. However, the bonded messenger next morning was a surprise; the contents of his briefcase a pleasant shock. Arden was handed a twenty by thirty centimeter silver foil. The engraved invitation to join a climb party on *Kyle Murre*. There was also a note:

The transport and fees are all prepaid. I love giving presents. You'll get more fun out of this than me. Someday I'll meet you on a mountain again.

G.—

". . . different than climbing a rock mountain." The secretary's voice brought Arden's attention back into the room. ". . . let me emphasize again," Leighton was saying, "that these routes are all graded according to difficulty and that Club members, or experienced climbers like yourselves, have climbed them all. Also our Kyle Murrian guides have been over almost every possible route up the Tree. Thus I, the TSC club, can offer you positive advice on all phases of your climb. It will help to make your sport more interesting.

"One of the first things you'll want to do—as a group . . ." He flicked an uneasy glance at Captain FitzRoi, but the Captain was gazing morosely into his kaffee cup and didn't seem to be interested. ". . . as a group, is to decide on a basic climb route. Once that is decided, I can go on to a more detailed discussion of supplies and equipment. Then later, or perhaps in other meetings, I can answer some of your questions about climbing techniques."

"I think, after seeing that model at the spaceport," Jessica said, speaking clearly into the room's acoustics. "I think that we will climb to the top."

"There doesn't seem to be any alternative," Doc Barr said, his voice was flat, breathy.

Arden didn't trust his voice. He merely nodded to add his agreement to Jessica's idea. The decision had been so easy; so quickly taken. They were going to do a record climb. On the ship no one had mentioned any specific goal for their climbing on *Kyle Murre*. They had talked around specifics, or avoided them. But the model of the Great Tree at the spaceport had really only reinforced the idea of a record climb. They were going to climb to the top.

"Well, of course, such a decision wasn't entirely unforseen," Leighton said, smiling slightly. "With climbers of your rated skill, it was to be expected, I suppose." He turned to the Kyle Murrian, "What do you suggest, N'Reem? How long a climb shall we provide for this team?"

The Kyle Murrian considered his answer. He had taken up four short sticks and was holding them in one hand. The sticks were grooved in a pattern of notches which the equipment expert seemed to be reading with his fingers. "Four days, Tsa," he said

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

finally. "The memory sticks you have inscribed show their skills to be excellent. A four day climb to the summit plate will be a challenge to all their skills. Any guide would be glad to speak the contracts and climb with them.

"Four days, Tsa. Four day." He put down the sticks he held and began shuffling and rearranging others on his table. H'Reem's planning system was all carved on the slim memory sticks and he was organizing his notes.

"Very well, four days," Leighton said. "Now, if you will take a look at the big chart for a moment I will show you the general route. Ah . . . the route marked in green, I think. Yes, that should be very enjoyable."

"A school climb?" Arden asked, and somehow he couldn't keep the contempt out of his voice.

"Far from it, Mr. Barth," Leighton said. Then he laughed lightly. "Oh, I see . . ." He gestured at the charts and the equipment table. "All this begins to sound familiar to you, is that it? Mr. Barth has climbed in many famous resorts as a professional guide," he explained to the others. "He, perhaps, envisions that this will be another climb, such as he has known, where the route is so well planned that each foothold and belay point is used over and over and over by party after party.

"Far from it, Mr. Barth. The exact opposite, in fact. You will not be climbing on rock. The surface of the Tree is living, growing bark. We have to take some care, here at TSC, that the routes are not over climbed. Damage to the Tree, for one thing, and danger to the climber for another, must be avoided. I assure you, this green route is over new bark. It has not been climbed for . . . oh, one season at least, two or three, in some of the higher areas. Never fear, Mr. Barth you won't be given a tourist climb. We don't have any of those on *Kyle Murre*. School climbs, yes. TSC runs a good climbing course for the special techniques used on the Tree and you will work along some of the training pitches in the beginning of this green route. Along here . . ." He put his pointer on the map. "And up to about here . . . The Cave of Winds. But even those pitches will be a type of climbing that you have never done before . . . and so, interesting and exciting; not boring by any means, I assure you."

"Sounds like a good idea," Doc said. "We probably all need some teaching when it comes to this kind of climbing. I've never climbed a tree before."

"No one has," Leighton said. "That's why TSC is here. And why the Great Tree of *Kyle Murre* is an extra-high point climb in Galactic competition."

"So, everybody climbs the school pitches," Jessica said. "That makes sense. What's next?"

"Next you go up toward the Branches. The green line is your route, but actually your guide will move up that area in a series of zig-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

zags. Making traverses across the face of the Tree and moving up as the terrain, or I should say, as the bark face, lets him. You'll camp the first night on top of one of the lower branches. Here."

"No night climbing, I hope?" Jessica said.

"No. No night climbing," Leighton said. "And you'll find this first stretch quite tiring. Bear in mind, it's all vertical face climbing. While you can stop and rest on your ropes, whenever you like; there are no really level places to sit or lie down, until you get to the Branches. No. No night climbing. You will really be too tired to try. Also the cloud level comes down to the lowest branches in the late afternoon. It wouldn't be safe—in cloud, at night.

"The next day will be taken in getting up through the branch area that is in the cloud layer. With another camp just above the cloud.

"The weather cycle up there is completely different and you will want to change clothes and redistribute the packs.

"Also, the last part of the climb is through smaller branches and the bark is not so heavily textured. The climbing up there is slower and we like to time your arrival at the record summit just before sunset. For the scenic, dramatic effect.

"You will spend a night on the summit and then come down. A little faster with the rappell ropes and with a little less climbing. One more camp in the clouds and you should be back here on the evening of the fifth day."

"For a bath, I hope," Jessica said. "Five days is going to be a long time."

"There will be Tree water for washing," Leighton said. "The guides will find you all you need. They will also arrange any privacy you may need. We don't get many women climbers who have the skill and experience—the desire—to want to climb our Tree. But we are sophisticated enough to provide you with bivouac comforts, I think."

"Oh, that shouldn't be a problem," Arden said brightly. "I've lead quite a few . . . integrated climb parties and . . ."

"I've been in rough bivouacs before," Jessica said sharply. A patronizing smile for the lady, with care so that she won't break helpfulness wasn't going to spoil this climb. She'd cut it off right now.

"And I too," Doc said. "I promise not to eat with my knife. We'll have a thoroughly civilized climb."

Jessica snapped her head toward Doc. Her anger blazing. Then she saw the impish gleam in his eyes and the grin twitching around his pipe. Her anger died as fast as her own laughter bubbled to the surface. The two of them were kidding Leighton. They had joined themselves immediately into a party of three, the minute he'd started patronizing her. A couple of beautiful men. She didn't know them, apart from the trip out here, and they didn't know her, but there was a bond—an instant comradery. They

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

were going to climb the Tree; Leighton was not. That brought Doc and Arden to her rescue.

"Righto," Jessica said when she finished laughing. "We'll dress for dinner and serve wine in chilled glasses."

"She-aa!" The word and the sharp splat of FitzRoi's hand against the leather of his chair arm rang through the room, dragging a shockwave of silence behind it.

"She-aa! Garbage and muck! I've never heard such muck. Climb briefing? Boy's club tea, more like it.

"You!" he stabbed a finger at Leighton. "You're supposed to tell me how to climb your bloody Tree? Huh? Is that the purpose of this cozy lunch-lounge dumb-show? If it is, why don't you come up with a positive route and let us get to work. Why plot out a zig-zag all over your pretty map? Do you have to turn in meter-length reports? Or am I supposed to take that chatter about dinner parties and drinks seriously?"

"No, of course not," Leighton began. "Just a little humor."

"I should hope not. Bloody, damn stupid ideas. As stupid as that snake path. Is that humor, too?"

"Which climb path would *you* prefer, Captain FitzRoi?" Leighton asked.

"None of them. I'd set a vertical compass from your jump-off place—that Cave of Winds—and hold a least-vector line straight up. My way would take two days—one night bivouac—and no champagne rations."

"Hmm!" Instead of arguing against a change in his plan, Leighton merely turned to his chart and, using his pointer as a straight edge, drew in FitzRoi's route. A slashing line cutting up across the colored tapes of the preplanned climbs. "Something like that, Captain? Would that be your suggested route?"

"Yes. Except I came here to climb it on the Tree; not talk about pretty lines on a chart."

"Of course. But the chart shows the impossibilities, Captain. In the branch area—here . . . your course intersects one, two . . . well perhaps fifteen major branches. That is, speaking about the ones I have charted on this scale; there are most probably more. We don't climb branches, Captain. They have to be circled. There just isn't any way, in our present state of the sport, to execute a climb on the underside of these very great branch systems."

"The climb would be too fast also, Tsa," the Kyle Murrian put in. He had been shuffling through his memory sticks, picking them up and grouping them, then rejecting the groupings, in a rapid finger dance. "Too fast. The party would become exhausted and then we would perhaps need to drum for a rescue climb. That is not the Way On the Tree."

"Too fast? Oh, yes, certainly," Leighton said, nodding. "Especially with Lady Van Horn in the party. Please, Lady Van Horn, I mean no slight to your skill. But a speed dash, climbing against three men . . . I seriously doubt if you would find

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

that at all enjoyable."

"Not even comfortable," Jessica said. "This is a serious climb for me and all the others. Do we have to turn it into a race? What's the hurry, anyway?"

"No, of course not. No hurry at all," Leighton said. "In fact, it would be decidedly dangerous for a party of four to attempt to climb so far, so fast."

"Damn it all! I know that! I don't intend to drag a climb-party along behind me. A guide if you insist on it. He can carry the supplies. But that is . . ." FitzRoi snapped his arm up, finger pointing at the chart. "That is *my* route. Alone."

A waiter unobtrusively exchanged Jessica's salad for the entree plate and seconds later, poured hot kaffee. The lunch service so far had been competent and nearly invisible. In fact, except for certain blossoming taste sensations, Jessica had hardly realized she was consuming the salad. She glanced at Doc, noticed he was concentrating on his plate, and decided to do likewise. FitzRoi's argument with Leighton was evidently a continuation of the problem the staff man had mentioned at the spaceport. The conflict was with TSC regulations and Jessica decided to follow Doc's example and let Leighton convince FitzRoi. The Captain was describing what he required for his solo climb. He seemed to have a complete, well thought out list, except for too many, "I"s, in most of his sentences. It was a precise series of demands; a battle order. Jessica bent her head over her plate, but she hardly knew what she was eating. Her ears were claiming all her attention.

"Ahh! That is a most complete climb plan, my dear Captain," Jessica heard a new voice. "When you have time, after your party returns from their climb, perhaps you will brief my staff on how you decide such details so succinctly."

Jessica looked up; she found it impossible not to. The voice was compelling.

The man himself was also compelling. He was standing in the doorway. Standing? He was filling the doorway. Jessica had never seen a man so big. Tall, his close-clipped hair was higher than the door frame; wided, he wore a formal jacket with braid-crusted shoulder boards that might span a meter: heavy, the ruffles on his shirt disappeared into a gold cummerbund that went around, and around, a vast waistline. "Good afternoon, My Lady and Gentle Sirs, My dear, Captain. Allow me to present my not inconsiderable self. I am John Bryant, Director of this Lodge and your host as the chief representative of the Taansvaal Sporting Club."

"Then you're the one to tell this idiot to stop making foolish noises and set up my solo climb," FitzRoi's voice was loud.

"No I'm not, sir. That idiot plans all the climbs and he must O.K. all routes before you will be allowed to leave. Mr. Leighton is our expert on the climb routes. Regardless of your opinion of his mental state, I rely on him

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

completely in these matters."

"I don't. He hasn't said anything sensible yet."

"Oh, I doubt that, Captain FitzRoi. Secretary Leighton is eminently sensible. What I believe you mean is that he has refused to let you climb alone. Am I correct? Well, of course he has. That is Club policy, sir. Policy, sir. Our agreement with the Kyle Murrian guides is that they are responsible for a party on the Tree. A single climber would not be important enough to ask a guide to make the trip. Serious loss of prestige, you understand."

"I came here to make a solo climb," FitzRoi said stubbornly.

"Then I would suggest that you return to your planet," Bryant said. "Except that is impossible at the moment. Instead you must be our guest. The food is really excellent. And we can perhaps find other amusements beside climbing. Do you pay triangle chess?"

"Impossible? Why?" FitzRoi picked the heart out of Bryant's rambling. "Why can't I leave?"

Doc Barr was interested, too. Getting FitzRoi off *Kyle Murre* seemed like a damn good idea. He didn't think the Director's line of attack would work, but keeping him here, and antagonizing him didn't make sense either.

"Oh, nothing serious, my dear Captain. At least not serious for us here at the Lodge. I have just received a call from the Spaceport. There has been a midspace collision out-system from us. An ore-carrier, carrying radioactives, has exploded and, as a consequence, there is a loose cloud of radioactive dust in the trade lanes. There are Outstar Marine scouts mapping the extent of the cloud and its orbit. Until the hazard is cleared, no unescorted shipping is permitted into our planet-space. There is no hazard on-planet. I have been assured that the solar wind and our planetary magnetosphere will keep the cloud clear of our atmosphere. A ship, flaring through the cloud and landing at our spaceport, could, of course, be seriously contaminated and would be a health hazard to our planetary population and a danger to the Trees. Such shipping will not be allowed to land.

"The Outstar Marines have promised to map a shipping lane as fast as possible and they will escort a rescue freighter around the cloud, if we need it. However, *Kyle Murre* is self-sufficient in most respects and the Lodge is well stocked with food and drink. I see no reason to lower the standard of our cuisine for some months.

"You are all, happily, just beginning your stay with us, so the fact that you can't leave—temporarily—is no hardship. I would invite you to remain as the guests of the Lodge, but you are already our guests. Please. Enjoy yourselves and your climb. There is no worry about the space accident, it is remote and will surely be resolved by the time you have completed your climb. Lady Van Horn, Doctor Barr, Mr. Barth, and my dear Captain, please relax and enjoy yourselves. I merely came in to tell you that there

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

was no cause to worry. I will see you again at dinner tonight. And Secretary Leighton will provide the very best climb plan for your party. Do not worry about that either. He is quite expert.

"Leighton, please go on. I did not mean to interrupt."

Bryant turned and walked out. He didn't give FitzRoi time to start another argument about any point of his long speech; he simply left.

FitzRoi, for his part, was oddly quiet. He didn't say anything at all when Leighton began talking about the type of ropes they would be using. In fact, he acted like the idea of a solo climb was completely forgotten.

Doc Barr, realized that the Captain had probably understood the flamboyant Director's message only too well. Doc had no way of knowing whether the space accident was real or merely a fictitious means that the Outstar Marines were using to let them put a Fleet unit around *Kyle Murre* in order to keep any military aid from reaching FitzRoi. Colonel Estaban had said that other methods would take care of stopping any effects of whatever incident FitzRoi tried to start. An Outstar Marine Fleet and a complete inderdiction of *Kyle Murre* certainly came under that vague, *other methods*.

On the other hand, the radioactive dust cloud could be quite real. And useful.

If any accident should happen to Lady Van Horn—a climbing accident—on the Tree. Any accident would certainly be cause enough to send in a blockade runner—a fast rescue ship. A hurried landing of a contaminated ship that would be a danger to *Kyle Murre*'s precious trees was definitely something that Doc could conceive as an *incident*. FitzRoi would be capable of planning something like that. It had his, cut-through-the rules approach. But a plan like that would hinge on an accident to Jessica . . . and FitzRoi didn't want to climb with them. Or did he?

Doc began to pay a great deal more attention to the details of Leighton's briefing. It began to look as if this trip was going to be something more than just an enjoyable climb after all.

5

The peculiar, disturbing noise of a rollogon truck growled and echoed through the silence of the peaceful forest grove.

The grove was an open meadow in a ring of tall trees. A meadow that provided access to the sky, light from the cloud-shrouded sun, and growing space for a young tree planted in the center of the grassy opening. Planted with an appearance of cultivation, for no others grew near it and the meadow floor was cleared of the usual fern and undergrowth that crowded the surrounding forest. The tree was small, barely five meters high, and young, scarcely twenty-five years; an immature treelet of its kind.

The rollogon truck rumbled around the root burls of the guarding trees in the surrounding forest, changing direction frequently as it followed along a trail that led into the clearing. It was

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

wider than the trail and its wheel-bags smashed brush and flower-fern as it rolled, leaving a crush-scar under the trees and broadcasting a scent that marked its passage as effectively as the sound of its engine.

The scent of the crushed fern drifted down-wind, carrying its message and alarm to the sensitive nose of the Kyle Murrian Guardians in the grove.

One of them stood slowly and stepped to the center of the trail. He was dressed in a white skirt, knee length and belted at his waist. A folded chest-cloth banded up from his belt, over one shoulder, supporting the three rods of his drum-sticks and banded with the marking Tree-symbols of his duty as Guardian-of-the-Way, and his name symbol—J'Gween.

From places of honor around the grove, five other Grove Guardians stepped out of the forest to become visible. They too wore the white skirt of duty, but their arms and upper bodies were bare, the brown-yellow fur blending with the forest background as they stood motionless.

They were also armed; each carrying a hunt-bow—a short crossbowlike weapon.

The Way Guardian was unarmed, standing as a white-clad statue, blocking the trail.

The truck roared past the Guardian, crashing into the brush, scraping near a tree to miss him, and bucked out into the clearing. The driver was laughing hugely at J'Gween's scramble to dodge the wheels, and paid no attention to the grove ahead.

The hunt-bows twanged and three bolts clattered into the plastic bubble covering the truck cab. Three of the Guardians ran directly forward to stand between the rollogon and the young tree in the grove's center. Their bows snapped bolts directly at the forward windscreen.

The driver was startled by the first bolts. His wild laughter cut off, then turned to a snarl of rage as he was fired on from directly in front. But his anger didn't keep him from seeing the cracks and crazes in his plastic or the fact that the bowmen were reloading. The plastic wouldn't hold up at close range. He whirled the truck, braking the rollers on one side like the treads on a tank, and drove, full throttle, for the trail he'd smashed open coming into the grove.

A volley of bolts rattled on his back deck and he was gone, plunging and bucking through the brush, the noise of his engine holding a heading back toward the Taansvaal Lodge.

The Guardians gathered around the tracks, each man wishing to see for himself that their charge was undamaged. Then, a few words from J'Gween, and they began to move purposefully. One walked about the crushed turf, among the rollogon tracks, picking out hunt-bow bolts and kneeling occasionally to repair, with his finger, a divoted scar in the grass. Another slung his hunt-bow and went to a place in the forest brush where the watchers kept a drum-branch—hollowed deadwood from one of the for-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

est trees around the grove. Presently, the low-frequency calling beats were sending for help from the village. The other three went back to their stations, melted into the forest growth, to resume their duties, guarding.

"Aiee, Brothers," J'Gween stroked his drum-sticks and sent the words along the drumbeats. *"The meadow is marked with deep tracks. The forest Way is crushed and broken. Bring the tenders of plants, the meadow keepers. We must close off the Way. Plant it full with new growth and old, so it fades from Out-worlder eyes."*

He reached his spirit behind him and drew strength from the Grove Lord. He felt the wind blowing through the branches, smelled the scent of the needle-leaves and heard the voice of his Lord singing softly in his ear tendrils.

"The Grove Lord sings in peace, Brothers. There is no danger. Come to mend the Grove, Brothers. The Guardians still guard. Come Brothers. Come Brother. Come. Come come."

The drum-branches sent out their call as J'Gween stood alone before the Grove Tree. He looked about the meadow. The gleaner of hunt-bolts had left the torn tracks alone, he couldn't repair those scars. The crushed path had come very close to the treelet that they guarded. Very close. That trail would have to be closed—planting placed in its path, the Way given back to the ferns and the forest growth—to hide the Grove from the Off-world strangers. The People didn't need trails to move through the forest. *"Yes, Brothers. The Way must be closed."* J'Gween stroked a final cadence on his drum-sticks and guided them back against his shoulder.

He looked up at the trees towering over the grove. Looked up; the tree trunks stood sixty meters to their branches and the branch-spread almost closed the sky above the grove—the cloud covered sky was visible only in the center, or through the lace of the branches. He whispered a prayer of thanks to the trees. The Grove Tree-Lord they guarded was safe. The damage to the meadow would be repaired and none of the trees had been damaged. The trust that J'Gween's Forest People held had been kept; their honor had not been diminished; their time of guarding had not been lengthened. The drum-branch from the Grove was telling the tale across the forest tops.

"Who drove the Off-world truck Tree-brother?" The drums of the village blended with the Grove beat. *"Give us his name, that we may speak against him, Brother. He must leave our world. No harm to the Tree. No harm to him. But, as the Way is closed, so our world must be closed to him."*

"The Ca'tn FitzRoi, Hearth-brothers," J'Gween swung his drum-sticks down to spread this on the double drum-path flowing between the Grove and the village. *"The one we were warned against. He who leads soldiers in combat on his own world. I*

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

was told the way to know his face. My memory sticks are notched for him. He comes to climb the Great Tree."

"The contracts have been said?"

"The contracts have been said, Brothers. And the Word given about our protection of the woman who climbs," J'Gween drummed back. *"But this man's evil was not in the contract, Brothers. He is a killer of trees. There was laughter-madness in his eyes. If the Guardians had not been here, he would have crushed the Grove Lord, as he crushed the forest fern. Does the contract still bind us?"*

"The Guardians were there, Tree Brother. That is their honor.

"The contract. The contract. A contract of the Tree is binding on all our Forest People. The Off-worlders come only to climb the Tree and not to Steal our land or take away our food. This is the way the God-Tree protects all of the Forest People. We must honor the contract as it has been said."

"He climbs then?" J'Gween fought to keep the anger from his drumming. He walked back to his honor position at the trail mouth. It would bé most difficult . . . that man, that Ca'tn Fitz-Roi . . . the climb . . . He composed his mind and tried to think calming Tree-thoughts, but the peace would not come.

"He will climb, Tree Brother," the village drums answered his questioning beat. *"You are named with other titles, Brother. Do not forget them!"* The drums beat out the signature of J'Gween's rank as Chief Climb Guide. *"Tell us your will, Tree Brother. Tell us your will, Climb Guide. You guard the Grove and it has been despoiled. We will rise against the Ca'tn Fitz-Roi, if you call it, then make other prayers to shorten our stay beside the God Tree."* The drum beat sadness. *". . . Or tell us to keep our honor and let him climb; leave his punishment to the Tree. To the Tree. Say your will, Brother. Say your will! Say, Brother! Say!"*

"He will climb, Hearth Brothers. The Grove Lord was not hurt. Let him climb. Climb. Climb."

"And you will guide him. Guide him. Guide him."

"I will guide him! And guard the Outstar woman. As it has been said."

J'Gween swung his arm violently to silence the drum-branch in the Grove; to cut the communication. There was no more to be drummed. The village Hearth Brothers were right. The contract had been said.

The Taansvaal Sporting Club had been honorable about keeping Off-world people away from *Kyle Murre*. J'Gween had seen the power and size of their Outstar spaceships and knew that no force the People could mount would stop them if they decided to flood people in to steal the land. But they had not done so, bringing in only those people who had come to climb the Tree for sport. Only the wonder and respect, held by the climbers who came for the Tree, kept *Kyle Murre* a sporting planet. It was the magic and

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

power of the God Tree protecting the Forest People against the Off-worlders as it had protected them against all other things. The contracts were sacred to the God Tree and the Off-worlders were here to climb. It would be J'Gween's duty to guide them. The contracts had already been said.

"Tcha-tka!" J'Gween made a noise in his throat. He looked around again, at the torn meadow and battled to still his angry thoughts. *The Ca'tn FitzRoi was here to climb, J'Gween would be his guide—honor-responsible for his safety. The Way of the Tree truly tested a man's honor.*

"Tch-tka!"

J'Gween sat on a small window ledge on the upper curve of a branch and waited for the sunset wind. He was high in the Giant Tree, up at the top of the cloud layer, and if the winds blew he might see the sun set. Around him were four memory-sticks. They were arranged as part of a specific Kyle Murrian ritual which J'Gween was required to perform as Guardian and as Chief Climb Guide for Taansvaal Lodge. The memory-sticks were stuck into bark crevices in a way that let them contact the living Tree and still be stroked by a talking-stick. They were placed and waiting for the Drumming-In of the Giant Tree.

J'Gween hadn't yet sounded any of the memory-sticks. Instead he was moving two silent-drum sticks across each other in a slow disciplined pattern; part Tree rhythm and part free-beating from his own thoughts. The silent-drum sticks were smooth, polished rods with no serrations marked onto them. Listening to them was an inner discipline of J'Gween's rank as Grove Guardian. Use of the silent-drum sticks required a calm, broad flow of thought and a resonance with, a tuning to, the Giant Tree.

He had come up here to drum the memory-sticks into the Tree because he was contracted to guide four outworlder people on a climb up the Tree. Before each climb, Kyle Murrian ritual required that the climbers have a Drumming-In, so that the true power of the Giant Tree would help them in their climb. It was a Tree ritual that all the Climb Guides observed, but only J'Gween climbed up here, above the cloud layer, for his Drumming-In.

The silent-drumming was not a part of the ritual that other Climb Guides performed either. J'Gween was sweeping the sticks across each other to drum his own inner discipline. He was silent-drumming as a Guardian.

His thoughts, following the silent-drum pattern, were about the other Tree that was part of his alternate duty as Guardian—the Tree called, Grove Lord—and about the threat against it by one of the outworld climbers. J'Gween was trying to calm and discipline his spirit so that he could begin a proper Drumming-In ritual.

"Brothers, he must climb; he must climb; he must climb." The refrain ran through his mind as it had been sent by the Drumtalkers of his village. The decision had been taken and

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

J'Gween was up here, high in the Giant Tree, to ask for aid; for the power of the Tree. But first he must calm his spirit and discipline the hate he felt for the outworlder who had driven his rollogon against the Grove Lord. First, J'Gween must draw peace from the Tree, then he could drum for power.

"Thrumm! Hummm!"

The smooth silent-drum sticks moved across each other, the racing smoke of the cloud tops blew away in the light wind, and the sky slowly lost color as the sun disappeared. J'Gween listened to the inner sound of the silent-drum sticks and thought about the Grove Lord Tree that he, and the Guardians of his village, held in trust for the People; for all of the planet of *Kyle Murre*. J'Gween was not yet old, as Kyle Murrians called time, but he had been very young at that time when the Tree Priests had first searched out the Spirit of the Grove Lord and brought it to the Village. A very young man . . . He was just old enough to begin training for the life of a Guardian over the newly planted Grove Lord. The new Tree had become his trust and the trust and duty of his village.

"Thrumm! Hummm!"

J'Gween slid the sticks into another pattern of movement so as to generate the ritual pictures of the Grove Lord's revered life. The Grove Lord, in the same third of a man's life that J'Gween had lived, was still a young tree, barely taller than the village roof tops. It grew slowly, for it had a very long life ahead of it. Pampered and protected, the Grove Lord would grow to be the same tall forest giant as this Giant Tree in which J'Gween now sat for his Drumming-In ritual.

"Thrum! Hummm! Ssss!"

There was a reverent phrasing of rhythms that went with that thought. J'Gween let them form in his mind. This was the concept the Tree Priest used when searching for the Tree Lord. The Grove Lord would grow through long seasons. Generations of Guardians, the whole life of the village, would be devoted to this belief. They would care for the new Grove Lord as it grew in the hope and trust that *Kyle Murre* would one day have two Giant Trees and the life power they would represent.

"Thrumm! Hummm!"

This was a commitment and a belief that was deeper than the usual care and respect for all the Trees on *Kyle Murre*. J'Gween seldom thought about the length of the duty he owed the Grove Lord, except during those rituals of Guardianship that were designed to magnify the purpose of the Guardians, and to glorify the Tree Lord's destiny. At these times, the Drumtalkers led him down such paths or rhythms as his mind was now following.

"Thrumm! Hummm!"

The silent-drumsticks brought back the teachings that told of the young Tree's roots growing deep into the earth during those years that he had served as a Guardian. In further years those roots would extend and deepen

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

until they fastened a mighty grip on the living rock of *Kyle Murre* itself. This would happen near the end of J'Gween's own life and other Guardians would see the Grove Lord grow in height and width of trunk, season by season. Other Guardians and other generations. Only the children of J'Gween's sons would live to celebrate the time when their Grove Lord grew higher than the forest trees.

"Thrumm! Hummm!"

He let the thought slide away. No man could hear the silent-drums of generations beyond sons unborn. The Grove Lord would be growing long and long before its top branches grew up here in the high air above the clouds. Long generations.

"Thrumm! Hummm!"

J'Gween crossed the silent-drum sticks, transferred the lefthand one to the fingers of his right hand, and held the sticks parallel to each other, not touching. With his right hand he withdrew the talking stick from his drumbag and reached out to the first memory-stick.

"Ratahumm! Baammta! Tcha Tcha."

The sunset silence vibrated to the low thrum of the stick. J'Gween stroked it slowly, for volume was not needed here, and with the stick embedded in the Giant Tree, the pitch was low. J'Gween stroked again. This was the background and climbing skill of the older climber; cautious, skill, wise, precision, and an undertone of endurance that was as strong and unbendable as the Giant Tree itself. The memory-stick vibrated and poured its sound into the bark of the Tree. J'Gween felt the Tree take away the drumming with no reflected sound waves to jar back up his talking stick. This was what his ritual called for. The Giant Tree was accepting this climber; protecting him with the power of the Tree.

"Swirr! Tsangle! Swirr!"

The next memory-stick was that of the female. It produced a bright-swirling bangle that seemed to be the signature of all those few female climbers who had come to *Kyle Murre*. But this one carried a strong overtone as vibrant as any male's basic beat. J'Gween supposed this came from her rock climbing skills. The tones and under-rhythms of that side of the memory-stick were as clear and vibrant as the stick of the older man had been. J'Gween could tell from those vibrations that he would have no worry asking the Giant Tree's power to support this female outworlder in her climbing. She would climb with strength and honor and do no disgrace to the Tree. He stroked her memory-stick for the ritual third sounding and let the vibrations fade away into the bark of the Tree.

Two more memory-sticks remained and the failing sunlight, even at this altitude, was bringing darkness to the shadowed area of the windowed ledge. J'Gween touched the third memory-stick.

"Jerack! Blarr! Tock! Tock!"

This stick produced harsh harmonies and vicious counter beats that

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

J'Gween had never heard in a memory-stick. These were sounds that he did not believe the Tree could accept, yet the Tree was not reflecting a counter beat. There was no rejection. As coarse and strident as the rhythms were, they were being absorbed by the bark and wood of the Giant Tree in the same manner as the other memory-sticks. The Tree was not rejecting this climber.

J'Gween listened more closely on the second sounding. This climber had threatened the Grove Lord and yet the village Drumtalkers had ruled that he should be allowed to climb the Giant Tree. Now, by accepting the rhythms of the memory-sticks, the Tree itself was reinforcing that ruling. J'Gween tried to hear the values in the memory-stick that made the Drumtalkers choose as they had. He finally decided that he heard common climbing skill under-weaving the harsher overbeats. The high dissonances and off rhythms came from that part of this man's life that dealt with commanding others and killing—killing in a different way than any J'Gween knew. But the climbing underbeats were recognizable and formed a strong theme on one side of the stick . . . And the Tree accepted the strange dissonate rhythms. J'Gween became satisfied with most of what he heard. He stroked the third ritual sounding and let the power of the Tree hear what was beyond the understanding of his ears.

"Bada! Ssss! Bada! Ssss!"

By comparison, the last memory stick was a steady, strong rhythm with positive pulses where the outworlder's climbing skill was tuned. The first sounding of the stick flowed easily into the Giant Tree. The dissonant harmonics of the previous memory stick were still echoing in J'Gween's ears, so that he missed the breaks and skips in the confidence runs of strengths. In the second sounding he heard them; interrupted phrasings, continued beats, circular vibrations, all hidden in the outer firmness of the major rhythm. Here was an outworlder who knew inner self-doubts and made many little decisions with himself.

J'Gween ran his claws out and back in with the worry of his puzzlement. Did the strong beats signify that the outworlder had mastered his lesser doubts, or was he hiding them? J'Gween couldn't tell. He would have to leave that judgement to the Tree also. In the final sounds of the drumtalk, that was the meaning of the memory-stick ritual.

He stroked the memory-stick in the third ritual sounding and let the vibrations die away to silence. Silence? No, the ever-present tree-drumming of the Giant Tree was murmuring in the darkening air. J'Gween listened to it for a moment, letting the sound and the power of the Tree fill his being and supercede the memory-sticks he'd just heard. This was a discipline of relaxation that was part of the Drumming-In ritual and he savored it for the full count of heart beats.

He ended the ritual by quick strokes

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

on a part of each stick that he hadn't touched yet, the name plaque. The Giant Tree received the rhythms of the outworlders' names; *Tsa Eldon Barr*, the old one's name hummed into the bark of the Tree, then, *Mentsa Jessica Van Horn*, and the harsh burst of *Ca'tn FitzRoi*. The last was *Tsa Arden Barth*, a steady phrasing on the air, then silence.

J'Gween folded away his talking stick, put the silent-drum sticks back into their case and, one-by-one, picked the memory-sticks out of the bark, put them away in a pocket, then began to get ready for his climb down.

With those few efficient motions he changed his person from a half-mystical Guardian priest to a precise Climb Guide. He became, *Ti j* J'Gween, Guide of the Taansvaal Lodge and swiftly organized his equipment for the downward trip.

The sky had darkened to full night now and he had to climb down through the cloud layer. Night climbing was not easy, even for Kyle Murrians—it was against the rules for offworld climbers—but J'Gween knew this route well and he felt protected by the full power of the Tree. He started down, using his claws and free climbing in the Kyle Murrian fashion. He only used his rope and outworld climb techniques in one or two places where permanent support loops had been placed for other climbers. These spots he found in the dark and used to anchor his rope for a short rappel or to clip a carabiner and a safety line for a narrow ledge. His night route down the Tree avoided most difficult places and all spectacular climb spots that needed a belay, oversize stopper nuts, or lots of assistance. Those places were not safe in the dark and he came down by easier ways. Eventually he reached the ground and, a few minutes after that, was back at the Tree Lord's Grove resting and waiting for his second turn at guard service.

J'Gween had a short second duty, ending at midnight and then he was appointed to go back to the Lodge and meet three of the outworld climbers face-to-face during their first viewing of the Giant Tree . . . at tomorrow's sunrise.

He touched the memory-sticks in his pocket and with the inner discipline of the silent-drumsticks, heard the climbers' name-beats again; the older one, the Mentsa, the Ca'tn's dissonances, and the regular cadences of Tsa Barth. The soundings filled his mind; at the dawn wind he would see them all except the Ca'tn who had refused to attend another meeting. It was said . . . Ahh, ahh. . . . At the dawn wind, J'Gween would see . . .

"Thrumm! Humm!" . . . At the dawn wind . . .

6

The Climb Guide stood quietly, his tail-tip curled politely around his left elbow as was required by the custom. He waited in the archway of the balcony and watched the three Outstar Offworlders eating their first day-meal. He stood unseen, where he had come up from the main lobby of the Climb

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Lodge. It was hard to imagine him remaining unseen for he wore climb-pants and a single-thickness *anorak* of brilliant yellow with his guide stripes on the shoulders, but *Ti j* J'Gween was a master of his skill and Tree-craft. If he wanted to remain unseen, he would not be seen. It was a cub-skill, taught him before he could climb.

He started to twitch his tail, meditatively in time with his consideration of the breakfasting trio, then remembered where he was and curled the tail-tip back around his elbow. J'Gween was inside the rich and polished climbing Lodge of the Taansvaal Sporting Club. The Lodge of the TSC and its private spaceport, fifty kilometers to the south, were the only Outstar structures on the planet *Kyle Murre*, saving the police station in the North Forest, and the Lodge was rigidly avoided by most of the native Forest People. Only *Ti j* J'Gween's high status as Chief Climb Guide allowed him the privilege of entering the lobby and lower floors. That status and the fact that he was completely dressed in Outstar climb-gear. The boots, pants, and *anorak* serving to hide his fur-covered body from the never-to-be-offended sight of the Lodge's guests, mask the click of his climb-claws on the polished floors. His lean, brown face; wide sleepy eyes; and his blunt, hairy hands were visible. They, in addition to his pointed, mobile ears and that smooth-furred tail, proclaimed his native origins and could not be hidden in any case. The tail he carried proudly under control; it was part of his climb-skill and he controlled even the tip, fully. The ear twitches were instinctive, like eye blinks; a survival characteristic he could not control.

However, his hands, face, twitching ears and mobile tail added to his image as an, "intelligent native species," for most Outstar visitors and they looked no deeper than the climb-clothes. *Ti j* J'Gween made himself acceptable whenever he had clients in the Lodge, assuming an anonymous camouflage within the building's environment with as much skill as he used in the Forest-lands. The clients at the Lodge saw what he wanted them to see, and no more. They had no idea of his rank as a Guardian or power among the Tree People. Chief Climb Guide meant only a good native guide to them, nothing more. The best guide available for the Lodge's better clients, never more.

He stood waiting, partly by the Lodge's custom, which required that he do nothing to disturb the clients, and partly because they, the clients, were still eating. The smells of Outstar foods were offensive to J'Gween's senses.

He stood waiting because he had no wish to join their meal. His own night-fast had been completed hours earlier when he left his Grove duties. He had eaten after the morning ritual and counted away all his prayer sticks before dressing to come over here. Yet that had not been time enough. These Off-worlders rose late, for they could not tell the coming of the day until the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

sun was high enough to shine a brightness through the clouds.

They came, it had been said, from worlds where the sun was visible in the sky and no clouds shielded them from its rays. J'Gween found this hard to believe, despite his continued contact with the various climbers. He could not imagine the intense heat as being livable, and most of these people were fair-skinned and light-haired.

At least the female-client in this climb-group was light-haired and pale. Perhaps off-world females had no reason to go out into the sun in its full heat . . .

But no. That was not true thinking. He fingered the memory sticks in his *anorak* pocket and thought back over the briefing tapes that had been played for him. The Lodge Secretary had collected the records and credentials of the persons in this party and presented them to J'Gween, at an excellent *kaffe* ceremony, when the contract was opened to hire J'Gween as climb-guide for this party.

The secretary's *kaffe* ceremony had been excellent; served from memory, not belief, by Tsa Leighton himself, but complete in ritual nevertheless. As complete as the briefing material on the party members which J'Gween had been able to notch into his memory sticks.

And the Outstar woman was rated as an excellent climber by the societies and clubs which the Outstar people kept to mark memory-records of such things among their own kind. J'Gween had no way to judge the ratings. He had never climbed anywhere off his own world, but he had come to trust the Lodge Secretary. When the Tsa Leighton made up a party of good climbers they climbed well; when he said that the guests were to be kept on the cub-walks, it was unsafe to take them anywhere else. This group was all in the special class, which was why Tsa Leighton spoke the contract for the services of the Chief Climb Guide. Indeed, Leighton implied that no other guide would take the party if J'Gween refused it. The honor was his, first; first in point of rank and first because of the skill of the climbers he would be guiding.

And yet, if her skill was adequate for the Tree, why had Tsa Leighton mentioned the special contract to guard her personally during the climb. The contract J'Gween had finally accepted was as Chief Guide to the party and as more-than-Guide, almost a Guardian for the Outstar woman, Jessica Van Horn.

The contract was strange. What danger could she be in, climbing on the Tree. . . . with a Guide . . . unless . . . with her pale coloring, there would be danger when they climbed above the clouds. . . .

Tchcta! The woman must be used to climbing under the sun of her own world . . . He went back to his earlier thought, fingering the memory stick. And yet she was as golden-clear in her coloring as a night *byhante* that had never felt the sun . . .

Well, *different Forests; different Climbs,* was a tolerance that could

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

apply to Outstar sun-habits as well. He would know her climb-skills when he saw her work. Her past record would mean nothing until then . . .

He silenced his thinking. The girl had gotten up from the table and was walking aimlessly toward the balcony rail. Something had disturbed her. Was she weirding enough to sense that he had been thinking about her? J'Gween stood motionless, only his ears listening, twitching, to hear their words.

"What is that FitzRoi's damn hurry?" the woman asked.

"He's got a military mind," Arden answered. "Put a map or chart in front of him and he starts planning marches and bivouacs and where to meet the enemy. The way some people read the signs in a spaceport." Arden thought she was talking about yesterday's chaotic meeting with the TSC climb committee. "Don't let the way he runs a meeting worry you, Jessica. We won't have to read maps on the Tree-climb. You met the guides that the Club's sending along? They'll keep FitzRoi on course."

"No. I don't mean that," Jessica pointed over the balcony. "A half-hour ago he roared in here in that bag-buggy truck and started shouting his head off. He's had the car-boy dumping fuel cans in it and chasing all over the parking ramp.

"Now, he's got those two guides out there on the ramp and he's bullying them." She added drops of sweetening to the cup of kaffe, trying to get the taste close to something that she was more accustomed to drinking.

"For God's sake! Now, he's doing physical jerks," she said, looking down into the lower level. "The military mind? Only a military mind would think of calisthenics under this heat." She looked up at the cloud-masked halo where a yellow-white star, small and hot in the sky, burned through the cloud cover. "Hands over head, deep knee bends, now side twists. Come look, Barth. How can he make those natives do that stuff?"

"The guides? That I've got to see," Arden Barth said, bringing his kaffe over from the table. "Those two guides haven't done a stitch of work since we put them on the payroll."

J'Gween mentally ran through the phrases of forgiveness. He personally liked the man, Barth, the one member of the party, lean and tall, who was most like the Forest People. The fingered memory stick told of his temperament of appearing lazy, doing things with effortless ease, and great controlled skill. Barth should know about the night prayers, the rituals of propitiation, that were the chief work of *Ai j* A'Lween. The prayers to the Tree were all important before a climb and were performed at night. A'Lween would be the second guide during this climb and the prayers were his responsibility. He did nothing during the day, because it was not yet time for him to do anything. His exercising now was merely a politeness to the soldier-Captain. Captain FitzRoi's occupation, when it had been explained to the two Kyle Murrians was

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

as unproductive appearing as A'Lween's day-time waiting. Neither J'Gween or A'Lween could fully believe in a world where men fought other men, but this Captain was a chief at this skill, so A'Lween paid him the respect due his rank and politely did as he asked.

"What's the deal, Arden?" Jessica was saying. "Is he going to command this climb? I don't think I want to be in FitzRoi's Army."

"In his Brigade, Love," Barth said. "He's only a Brigade-Captain, not an Army-Captain. By God, he has got himself moving, all arms and elbows. Exhausting.

"Why don't you stop worrying about our crazy Captain and come back to breakfast. Or take up a quiet hobby like the Doc over there." The two of them wandered over to where Doc Barr was intently looking through a large telescope mounted on the balcony.

"What have you found to look at in all this cloud," Jessica asked.

"I'm waiting for the morning wind," was the answer. "The Lodge Secretary told me that we can see all the way to the high forest from here. The Sporting Club has cleared a vista-way. The clouds might clear . . ." His voice died away. He had taken his eye from the telescope while he talked and in turning had caught sight of J'Gween. His voice faded to an expectant silence.

J'Gween was glad to be noticed. His unobserved assessment of the trio had been welcome, but he had no more time to stand idly watching them. He had come up here this morning with a definite purpose in mind and already he could smell the morning wind. He walked forward, pacing slowly so that the others would have time to turn and see him. Even in Outstar boots, J'Gween moved silently and he had to take precautions to avoid startling his clients by seeming to appear out of nowhere when he came up to them.

"Aha! Here's our Chief Guide," Arden Barth commented as he turned to see what Doc Barr was staring at. "Captain FitzRoi hasn't drafted everybody for his exercise foolishness."

"Of course not. He's a Chief Guide," Jessica said, as she too turned toward J'Gween. "FitzRoi couldn't push him through basic training."

Eldon Barr came slowly forward three steps and said,

"Good morning, *Ti j*. We welcome your wisdom. Will you take kaffe?" His tones were formal and kaffe was the only food on the table that would be considered edible by the guide. He spoke Pan-stellar. With only one day on *Kyle Murre*, a bare week's vacation total, he had not attempted the language. TSC record tapes had given him a slight understanding of some phrases, but not much of a speaking knowledge. But Doc Barr picked up customs quickly, with a sure extrasensory talent, as some people—moving into a new neighborhood—would pick up the location of a market, the flier station, or a bootlegger-bookie parlor. He knew that the greeting by the eldest of a group and offer of food was

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

a hospitality custom here, even though the guide wore civilized clothes and was inside the Lodge.

"He offers the kaffe ceremony, Brothers," J'Gween's thought slid out to meet the morning wind. He would have drummed the words to the village if he had brought his sticks. *"He is a stranger to our ways and yet I do not feel like a stranger before him. And he offers kaffe. We were right to honor the climb-contract, Brothers. This one will climb with honor. The Tree-may-protect-him!"*

"The offer is welcome, Tsa Barr," J'Gween said aloud, his tone equally formal. "I will accept in a moment. But I have come to be with you during the Winds-of-Morning, and it is almost time. Will you look there!" He pointed with one hand. "Look out into the cloud mists. Perhaps, Tsa Barr, you would like to continue using the telescope which the Lodge provides."

"What are we looking at?" Jessica asked. "Did you come to watch Fitz-Roi doing his physical jerks? Look there. He is surely silly, isn't he?"

"It is perhaps true that Ca'tn Fitz-Roi makes his body bend and twist to check the fit of his clothes and boots," J'Gween said. "Such fitting is important when climbing in our climate and I have been told he is a most particular planner. Perhaps it is not true; he may have other wisdom guiding him."

"Oh, I hadn't thought about that." Jessica looked down into the patio again.

"And now, Tsarina," J'Gween called their attention back to his pointing arm. "The Winds-of-Morning are beginning to blow. And they will blow away the cloud-mists of the dawn. So you may see . . ." He slid his eyes shut, in politeness, to allow the Out-worlders to be the only ones to see it . . . when the clouds parted . . .

"I close my eyes, Brothers. Let the Out-worlders honor the Tree with their first-vision. Now we will know their emotions and judge their true feeling for the climb-sport. Does it honor the Tree? The Tree will know. The Tree will know."

His mind, as it always did when he faced the scar through the forest that the TSC called a view-lane, was carrying the picture of the young Grove treelet. The Grove Lord was one of the replacements for the trees destroyed when the Lodge cut that lane, and, as such, was the trust that his people guarded until it grew to full height. The Grove Lord bound them to this part of the high-forest and held them to ties with the Lodge and its guests, for so long as the tree grew. The Forest People, in the dedication of their trust, guarded and cared for all the Sacred Groves that replaced the trees cut when the viewing lane was opened; opened so that anyone who wanted to, could stand and look . . .

Arden Barth drew in his breath and began swearing softly.

Jessica looked out across the valley, along the line of the scope and gave a little shriek of wonder.

J'Gween felt the morning wind with his ear tendrils and knew what they were seeing. His heart began to beat

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

more rapidly. The Lodge had destroyed many trees, but they *had* opened the viewing lane; opened it so that anyone who wanted to, could stand and look . . .

He lifted his head, formed the slow phrases of the greeting prayer in his mind and opened his eyes to look long, and lovingly at the god he served. *The Tree of Kyle Murre.* The Master of the Forest.

The Tree was a solitary giant, towering above the rest of the forest, framed alone in the view-lane, and isolated by the clouds that still hid its top. The Tree was a lonely giant, a god, unapproachable even in the magnificence of the high forest. Judging by the conical shape of the other trees, the clouds cut off half its height. The lower branches were just visible in the bottom of the cloud layer, the rest of its towering height and tree-shape was shadowy and invisible as the clouds thickened through the branches. What the three could see, was the massive trunk, wide enough to fill the cleared lane in the distance—a lane wider than this wing of the Lodge. When the eye followed the reverse perspective back to the cleared area in front of the hotel garden, the tremendous thickness of that distant tree-bole suddenly flipped its size into focus. The massive width at the forest floor was obviously necessary to support the weight and towering height, but the eye refused to give a scale to anything that big without a deliberate effort to compare it to something of known size. Just looking at the tree, one couldn't even judge its approximate distance.

"How far away is it?" Jessica asked. "I mean it's so much bigger than the other trees in the forest. Yet, it must be a long way to be so big."

"The Tree is ten kilometers from here, Mentsa," J'Gween said. "The Lodge company cleared ten kilometers of forest to provide that sight line. But you are right, the Tree is simply much bigger than the other trees. Your climb-book will give you the true numbers, but I believe it lists two hundred and ten meters as the width at the base. And you will be climbing to the Record Tree-top; forty-two hundred meters."

Doc Barr said, "It's bigger than a mountain!" Then he was silent, seeing the tree with the full magnification of the telescope. It was beyond words. He was looking at the base structure and rough textured bark of the lower section of the trunk. "I can see some rough places," he said, finally. "The bark looks like a vertical cliff, full of chimneys and fault cracks." He turned the elevation controls and moved his line of sight up the vast sculptured trunk until the first heavy branches filled the field of the scope and the furred tendrils of cloud began to blur his vision. Then, he stepped back and said, "Want to look?" His eyes and mind were momentarily surfeited of the magnified view.

"Oh, yes! Let me!" Jessica moved in to the scope as Barr moved aside to let her have the eyepiece.

In contrast to their movement, J'Gween's attention was caught by

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Arden Barth's rigid stance. He was standing, muscles tightly locked, staring out across the valley. J'Gween was worried slightly about his frozen stance, but the man *was* looking at the Tree. It was the first time he'd seen it, so some surprise and wonder was to be expected.

"We're going to climb that?" Barth said, his voice deep with emotion, as he echoed the phrase he'd used in the spaceport terminal. Was it wonder? Fear? Amazement . . .?

J'Gween was not sure in his reading of this Out-worlder's emotions. He considered a moment, the muscle-locked intensity he'd seen. Did Arden Barth tense up like that when he climbed? That would be dangerous. It was not recorded as one of the Tsa Barth's habits . . . not on the memory sticks . . .

Ahh tch-tka! Perhaps it was to be expected . . . normal. Tsa Barth and the Mentsa were still staring at the Tree. The Tree seemed to draw their eyes—but without stunning their minds. They were interested, excited—the Tree was big; vast beyond all experience to them—but they did not chatter aimlessly as some other clients had done. Perhaps they were intent on climb lore. Perhaps that was the Tsa Barth's reaction. He could be one of those who climbed all alone, within himself, even when he climbed with a party. There were such. If so, then his tense study of the Tree was reasonable; if no . . . J'Gween decided to be extra watchful. He knew that he would be able to tell once Tsa Barth began to climb . . .

"Can you make out any of the climb routes they have marked on the photo-mosaics?" Jessica was asking.

"No." Doc said. "You can see some pitches. Obvious. Follow them a little way. Then you could go almost any direction . . . . or none at all. Can't tell. We'll surely need a guide to get anywhere. A man could get lost, fast."

"I will share my skill with you, Tsa Barr," J'Gween said. "You will not get lost. I will guide you by the best climb-ways," he said.

Lost on the Tree? Oh, Brothers, what a sad Out-world idea, J'Gween's thoughts dropped into the silent drum-talk phrases as he waited to let the climbers look at the Tree for moments longer. *Lost on the Tree. Even a cub could climb up or climb down, but always, as he climbed, he would be on the Tree. On the Tree. To climb on the Tree is to know the reason for life and honor. It is the best place to be in all the world. Lost?*

"Tsarias," he called, raising his voice to draw them away from the sight of the Tree. "Will you hear my words a moment. It is almost time for you to begin the climb you came here to do. There are some things—some small matters of climb-lore—that I must say, then I will leave you. Will you hear my words about your climb?"

"Of course," Jessica said, turning away from the scope. "We didn't come all the way to *Kyle Murre* just to

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

look at your Tree, did we?"

"I do not believe so, Mentsa," J'Gween said politely. He stepped to the food table, selected a cup, poured himself kaffe, and drank it to complete the invitation of hospitality Barr had originally extended. The *kaffe* ceremony—the ritual of shared food—meant that he could talk to them more freely, instruct them without insulting, even though what he said might be as cub-talk to their climbing skills.

"As you have been told," he began. "The Sporting Club has a custom of waiting two days before letting guests begin to climb. It is the difference between our air, and the pull that your world calls from your muscles. Our world is kinder in these matters, but you must become used to its ways. This is a true thing, is it not?"

"That's right. Your gravity runs, point eight norm., and the air is thicker, more oxygen, a little more pressure," Arden said. "We're feeling fine, now. When do we climb?"

"Except for the heat," Jessica said. "The clouds trap the sunlight and make everything steam—I don't think I'll ever get used to that."

"It will not bother you on the climb, Mentsa. Tree-winds are cooling."

"You said, two days," Barr put in. "We've been here almost that long now. When do we climb, *Ti j?*"

"The Lodge took your climb gear under seal and guard," J'Gween answered. "They plan to return it when your time of preparation has been completed. I have come to the Lodge today to tell you that the time of the waiting will be ended soon. The Ca'tn FitzRoi has already had his gear returned, as you have seen. Your packs will be released today, I believe, and we may begin the climb tomorrow. I will plan and pray for that. May-the-Tree-be-willing."

"Tomorrow . . ." Jessica's voice was a whisper.

"One thing more," J'Gween took a climb-loop from his pocket and held it out on his open palm. "We climb a living Tree, Tsarias. And to do honor to its life, we do not drive steel into it as is your custom with the rock of the mountains that you have climbed before. May I ask you to think well on your skills with climbing-loops such as these."

"We call them hex-stoppers," Arden said. "Use them all the time."

"Shorter to call'em nuts," Doc Barr said. "But all the scenic climbs use them. They don't mark up the rock or destroy cracks—keeps the rock clean. We have climbed with them, *Ti j.* But I don't have a hammer small enough to be useful with these. Will a hammer be needed, *Ti j* J'Gween?"

"In most places they can be placed with the fingers and taken out by hand, Tsa Barr. But the Lodge will provide you with a thin, light hammer, when we issue the hardware—at the climb-site."

"In that case, you can depend on our skill, I think," Barr looked at the other two as he said this and collected nods.

"I shall," J'Gween said. "But you

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

must depend on your mutual skills more than I, so I ask again, Tsarias. Rethink your climb-wisdom tonight. Climbing the Tree will need all your skill. I will leave the climb-loop to remind you." He handed the loop to Jessica, *partly to see how she would react to the nearness of his hand.* She took it with no hesitation, although she was clearly able to see the claws in his furry palm. *Good. She had steady nerves; she would climb well.*

"And now, I leave," he said. "I will meet you again when we climb. If-the-Tree-is-Willing." He bowed and turned to go. The Forest People had no rituals for leave-taking.

The trio watched him go; Jessica swinging the climb-loop/nut; Arden lighting another cigar with slow movements, and Barr simply watching. Doc Barr was the first one to turn back to look at the Tree. He stepped over to the telescope and refocused the lenses.

"There are flags and marks on the bottom of the trunk," Jessica said. "Do they have a trail marked?"

"I hope not, Love. I don't mind my hotels on the tourist scale, now and then, but we paid for a bit more than a tourist climb, didn't we, Love." Arden's voice slipped back into its bantering tone, his thin shoulders, slumped lazily and appeared relaxed, but his hand was still quivering with tension as he relit his cigar.

"All climbs tend to have marked pitches on the lower slopes," Doc said dryly. "I suspect that the TSC caters to dilettantes and climb-collectors here just as much as at Everest and Tell Alph and MW635. There are always men like that even in the Master Climber ranks and all the class six climbs attract such climbers like flies. Just because this climb is the culmination *of my . . . of our experience,* means nothing. When you're just playing with class six work, all climbs are difficult. A climb collector can start here as well as anywhere and he doesn't have to get off the training climb to put an entry in his record book.

"But don't worry about our climb. *Ti j* J'Gween will be a good guide; the best. Besides, can you see, Captain FitzRoi going on a tourist climb?" He put his eye back to the scope, looking at the heavy massif of the tree trunk. His eyes found the flags that Jessica had seen, followed them across the face of the bark, up the switchback, then, skipped higher, seeing traverses, climbs, obvious belay stances. He had no way of knowing what route J'Gween would lead, so he mentally planned the climb as if he would be leading it. His eyes were testing the surface, picking the pitches, his feet tensing in his shoes, as he found footholds, his fingers curling unconsciously. And his mind was repeating, over and over, Arden's first shock-filled phrases; "We have to climb that? We have to climb . . ."

Across the valley the Great Tree of *Kyle Murre* waited, majestic and serene, with the answer: the only answer he would ever get.

TO BE CONTINUED.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

A MATTER OF LIFE AND DEATH

Death may be inescapable—but not necessarily permanent.

R.C.W. ETTINGER

Cryonics is the art and movement that could save your life, and even bring you longevity which verges on "immortality."

As a science fiction reader, your familiarity with cryonics, and your chance to benefit from it, are slightly greater than average—but are only slightly so.

Still, our motto is "Never say die." Let's try again to nudge these deadly statistics a bit in the right direction by briefly reviewing the background and surveying the current situation. At best, we may improve the chances of my family and friends a little, and improve your chances a great deal. At worst, we should shed some light on unexpected relations between science fiction and science fact, even if that light is cast in the colors of darkness.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

(Was it James Blish who said that?)

1. The Scientific Background

To arrive at the cryonics thesis, we put together a few simple facts and one reasonable assumption—especially reasonable for science fiction readers, one would suppose.

FACT 1: At the time of clinical and legal death, the patient is usually still 99% alive, in the sense that most of his organs and functions are still intact. (The physician has given up because, in his opinion, the damage—especially brain damage—is "irreversible.")

FACT 2: "Irreversible" means "not capable of being reversed by means so far employed." (Thousands of apparently dead people are revived every year who, in earlier times, would have been regarded as hopeless and allowed to remain dead.) If there are any absolute criteria of irreversibility, no one knows what they are, since even the generally accepted interpretations of quantum theory have their doubters, and may change in the future.

FACT 3: At very low temperatures, most physical and chemical changes, e.g. in a clinically dead person, are extremely slow—negligible at liquid nitrogen temperature, in the opinion of most experts. (A "dead" body will not get any deader.)

FACT 4: Although under uncontrolled conditions the damage done by freezing is extremely severe, currently known methods can prevent or greatly reduce this damage. Survival after freezing and after storage in liquid nitrogen has been achieved with many types of human tissue, with some mammalian organs, including dog kidneys, with the cat brain (equivocally), and with mouse embryos.

ASSUMPTION: Medical progress will continue. Eventually, we may learn how to repair even serious freezing damage and major injuries, and how to cure all diseases, including senile debility.

The facts and assumption together spell "immortality," or at least a chance thereof. (Of course, we do not use "immortality" in the sense of eternal life or invulnerability, but elimination of "natural" death, thus indefinitely extended life.)

The patient (we do not call him a "stiff," even when he is glass-hard) is prepared and frozen as soon as possible after legal death, by special methods: a crucial step involves replacement of blood by a "cryoprotectant" solution that prevents or minimizes freezing injury. (Before long, we may get legal sanction to freeze a terminally ill person before death, with all the obvious advantages.)

At worst, then, the patient will simply remain dead, and will never know that the money and effort were "wasted"—and indeed they were not, since the patient died with hope, and the family had hope and a feeling of usefulness instead of helplessness, and the action helped to advance the state of the art and improve the chances of those coming later.

At best, the patient will awaken one day, as after a moment of sleep without dreams, and then . . . the science fiction writers should take it from

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

there, but in most cases, they have sold out cheap: more on this later.

II. The Odds

Many scientists say the probability of revival of frozen patients is small. They are lying.

They are implying that they have actually calculated or estimated the odds when, in fact, they have not. None has ever accepted my challenge to display a calculation of probability. Incidentally, they are showing astonishing egotism, suggesting that problems that they cannot solve, now, no one will solve, ever.

Because of presently irreducible uncertainties in the factors, the only scientifically accurate statement one can make now is that the probability of revival is ½ ± ½—in other words, somewhere between impossibility and certainty. Personally, I choose to look at the sweep of history and take an optimistic attitude. But *whatever* the odds, we can improve them by organization, research, and a variety of practical measures.

We must also remember that the *expected gain* in a gamble is the product of two factors—the probability of success and the value of success. If the prize is big enough, then even a small chance would be worth taking. What would it be worth to you to become immortal and superhuman?

III. Recent Developments

The cryonics movement can probably be said to date from 1962, when I published the private, preliminary version of *The Prospect of Immortality* and Evan Cooper published his book, *Immortality: Physically, Scientifically, Now.* (In 1947 I indicated the main thesis in a short story, "The Penultimate Trump," which was published in the March, 1948 issue of *Startling Stories;* but this accomplished nothing.)

I was ludicrously and tragically wrong in expecting cryonics soon to become a mass movement. It began small and has grown very slowly—but it has never stopped growing. Young people have grown up in the movement and are now contributing their help as professionals in cryobiology, law, and other fields. (My son, David, does most of the legal work for the Cryonics Institute.) In recent years the *rate* of improvement has accelerated—not particularly in numbers, but in quality. Total membership in the cryonics organizations is still only a few hundred, but with a larger fraction now actively and effectively involved. (Over the years, a few thousand have been involved on the fringes, subscribing to newsletters, etc.) We are probably outnumbered by the talk show hosts, TV commentators, and feature writers who have exploited our curiosity value.

From our local viewpoint, the most important recent development has been the emergence of a second nonprofit corporation, the Cryonics Institute, with a facility in the Detroit area, offering contracts to its members for cryonic suspension and long term storage. Because of its cooperative nature, with major services donated by members, and technical innovations, costs

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

are 40% less than those quoted by commercial firms. CI charges $1,250 for an individual membership, plus $28,000 for the total package of services, including storage; storage alone is $900 yearly. Sometimes the bulk of the money is provided through life insurance. (!) No one in the organization is paid; officers contribute their work as well as their money. CI presently has one member in storage.

The older organization—also nonprofit, and with tax exemption—is the Cryonics Association, formerly called the Cryonics Society of Michigan, Inc. Its purposes are educational and scientific. It maintains a van or mobile emergency unit with equipment and chemicals for the early stages of preparation of the patient, which is available without charge (except for replacement of supplies) to any person or organization under appropriate conditions. Its availability locally helps reduce costs for the CI. The CA perfusion machine, designed and built by Walter Runkel, a CA director, represents the equivalent of many thousands of dollars. CA dues for members and associate members are modest, since no personal services are offered other than a newsletter, other publications, and counseling; what CA offers, primarily, is a chance to learn and to begin involvement.

There are eleven active cryonics organizations in the U.S.; names and addresses of all of them can be obtained from the Cryonics Association, 24041 Stratford, Oak Park, Michigan 48237.

We have heard of twenty-nine frozen patients to date. (No, we do not think Walt Disney was frozen, although some say he wanted to be.) Some of these were later thawed and buried when the families changed their minds or ran out of money—but in every case where the patient himself made the arrangements and provided the funds, he is still frozen.

IV. The Question & Answer Routine

Q. What about irreversible brain damage in three to eight minutes?

A. In 1970, Hossmann & Sato showed that the cat brain could recover fully after at least an hour of total ischemia and anoxia at normal body temperature. "Irreversible" pertains more to the state of the art than the state of the patient.

Q. What about population problems?

A. No one ever sacrificed his life to avoid crowding. Anyway, cryonicists don't make much of a crowd.

Q. Isn't it against God's will!

A. Ann De Blasio's priest didn't think so—he consecrated her capsule.

Q. What if I'm revived and I don't like it?

A. Living has always been dangerous. Now even dying is dangerous.

Q. What if my husband marries again while I'm frozen?

A. That should be your worst problem.

Q. Isn't dying natural? A part of life?

A. Sure. So is syphilis, and poverty, and war.

Q. Aren't cryonicists egotistical and selfish?

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

This is the way the world ends.

FREDERIK POHL'S JEM

The *Hugo* and *Nebula* award-winning author of *Gateway* takes you into the future, to a time where the food bloc, the oil bloc and the people bloc warily coexist with each other. Until the discovery of Jem.

Not since *On The Beach* has a novel created such a vivid, visionary sense of the future. The people are real, every bit as heroic and venal, generous and petty, subtle and stubborn as our own leaders and followers.

Look forward to the best SF view of the future you've ever read. It starts on page one of Frederik Pohl's JEM.

A Science Fiction Book Club Main Selection. A Literary Guild Alternate Selection.

"Frederik Pohl is the shrewdest thinker on the future, both in fact and fiction, that I have ever met."—Isaac Asimov

To your bookseller or direct to:
ST. MARTIN'S PRESS
175 Fifth Ave., New York 10010
Please send me _____ copy(ies) of JEM @ $10.00 each.
Please include 75¢ per book for postage and handling.

Name _____

Address _____

City _____ State _____ Zip _____

AN 8/79

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

A. Yes. But we're better neighbors than most altruists and ideologues. With longer life, the Golden Rule becomes more important.

Q. Why should I want another time around, when I don't even like it this time?

A. It's not a merry-go-round. We think the future will be better—but it will certainly be different.

Q. Why would I want to live without my relatives and friends?

A. Maybe they'll be there, too. Mine will.

Q. How could I get along in such a different world?

A. By adapting—with skilled help, using advanced means of education and physical improvement.

Q. How can you be sure of all this?

A. As the skunk said, I'm only sure of one thing: *stinko, ergo sum.* But if you prefer the other choice, rot in good health.

V. Some Misconceptions and Non-Problems

Some people think it astonishing that the cryonics movement has had so much success—the most radical and revolutionary program of all time, and some people are actually doing it, and nobody has been lynched. However, we prefer to be astounded that the brightest promise of the ages has not met more enthusiasm. The reasons, mostly, are not those that first come to mind.

The main problem cannot be lack of scientific evidence. Every manner of goofy movement and panacea attracts thousands of people and millions of dollars with virtually zero evidence: dianetics, gurus, astrology, vegetarianism, religions and ideologies innumerable, *ad nauseam.* Cryonics has a clear logical foundation and professional scientific support; even its scientific opponents concede it has *some* chance.

The problem cannot be the expense. Thousands of Americans can afford it out of petty cash, and millions out of a lifetime budget, for example, through life insurance.

The problem is not that cryonics has failed to come to the attention of rich and influential people, but that such people are almost hopeless. Howard Hughes died of medical neglect. Your average millionaire relies on "expert" advice, and the experts always advise "immortality" through endowing a library or buying a football team. On the other hand, maybe some very rich people *have* been frozen; they wouldn't need us, particularly, and would probably be very sneaky about it anyway.

The problem is not the antagonism of the establishment. We do not threaten anybody (at least in the short run) and are seldom perceived (on the conscious level) as threatening anybody; and our membership cuts across political and religious lines.

VI. Some Real Problems

Simple inertia is an important factor. Societies and habits of thought can change radically and quickly, if the time is ripe, but this usually requires a charismatic leader, and cryonics has not produced any.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Related to inertia are simple laziness and improvidence. As a mail-order con man recently put it, people want magic; they want health, wealth, and sex appeal—provided the method is effortless, cheap, and guaranteed. Few Americans even save much money; if it weren't for Social Security, there would be a poorhouse behind every hill. Eventually, Social Security may cover cryonic suspension; meanwhile, cryonics helps those who help themselves.

Then there is the vicious psychological threat some people sense in cryonics. The immortalist says, in effect, that the individual is important and potentially permanent, while institutions are transitory. Yet many people have made their peace with death *precisely* by seeking "immortality" through attachment of some "higher" and "eternal" cause or institution. You can't sell cryonics to a zealot of any stripe.

Furthermore, prominent and successful people are faced with deprecation of their past achievements. Everything in the past is preliminary; everybody is just beginning; nobody can rest on his laurels. An invitation to renewed struggle may not seem very tempting—because these people fail to realize that after rejuvenation they *will* have the zest and the hormones to build new and more interesting lives.

Even sensible people, favorably disposed, nearly always procrastinate, thinking there will always be time, and maybe it will be easier and cheaper later. The first catch, of course, is that later you—or someone you love—may be dead. The second catch is that waiting—on a mass scale—forfeits the lead time necessary to build organizations to maximal effectiveness and carry the research to complete success. To him who only sits and waits, the one thing sure to come is inevitable oblivion.

There is also a failure to distinguish between degrees of procrastination. It is possible to help the movement—and oneself—without immediate full commitment. The various organizations offer different kinds of memberships and activities, some of them very cheap and easy, all of which help both the organizations and the individuals to some extent, and by a feedback and seeding process may help a great deal.

Another real problem, I believe, is the numbing and blurring effect of science fiction; in Analog, this deserves separate attention.

VII. Negative Aspects of Science Fiction

An active imagination leads some people to science fiction, and conversely. I still remember the 1927 *Amazing Stories,* and I grew up expecting that one day senescence would be conquered. I'm not really sure any more, but my main inspiration may have come from the Neil R. Jones stories.

In the first of these stories, a Professor Jameson's body was put into orbit. After millions of years—"near absolute zero" as the author mistakenly believed it would be—an advanced

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

race found him, revived him, and put his brain in a mechanical body. But apparently the author failed to realize that if it made sense for a frozen body to wait for rescue in the distant future by aliens, then it makes sense to freeze the dead now, in hope of relatively early rescue by our own people. Of course, at that writing, the successes of cryobiology were still unknown.

Unfortunately, science fiction has become largely vulgarized and trivialized, especially in the television and cinema versions and, through a strange anomaly, has even come to serve antiintellectual and antiscientific dispositions, as in popular versions of *Frankenstein.*

It is not just a matter of pop culture glorifying intuition and mysticism over logic and rational behavior—although it is bad enough that, in *Star Trek,* only villains want immortality and only Nazi types aspire to become superhuman. Just as pernicious is the cop-out, the pandering to the yearning for easy answers, as when *Close Encounters* suggests that if we only watch the sky and mind our manners, Big Daddy will give us a hand up. Don't hold your breath.

Even worse is the *inoculation effect* I am convinced exists—or we might call it the "cry wolf" effect—whereby excessive fictional anticipation dilutes the capacity to recognize and react to the fact. Repeated exposure to superficial and distorted fictional versions of cryonics, for example, deadens the sense of wonder and replaces it with the illusion of familiarity. If it were not for this inoculation effect, more than tiny numbers of science fiction readers and writers would at least *investigate* the opportunity offered by cryonics in the real world.

Finally, there is the loss of motivation to live in the future, that the reader is apt to suffer.

Nasty futures lend themselves to easy writing, as do simplistic futures where nothing much is really changed except for bigger and better space ships. When people keep reading that the future will be at best much like the present, and at worst like hell, who wants to make a big investment in life extension? Too many authors tell us the future will be "dehumanizing"; very few tell us we should want to become transhuman.

Getting down to cases, let me cite just one bad example, if the victim will forgive me. He isn't a straw man; Poul Anderson is one of the better science fiction writers. But his books are mostly just space operas, with a little psycho-social gimmick here and there. The give-away is straight out of the mouth of one of his characters, who says something like this: "Have you ever wondered why no alien race is substantially more intelligent than human?" Never mind how he answers himself; the real answer, of course, is that otherwise the stories would be too difficult. (And even when other writers assert the aliens have superior intelligence, they seldom act like it.)

Since writing about superhumans is itself nearly a superhuman job, we cannot expect much from far-future

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

stories, except light entertainment. But we do have a right to expect—and we desperately need—detailed and optimistic stories of the near future, of the transition time between mortality and immortality, between humanity and transhumanity. We need stories in the good old (!) fashioned meliorist tradition, that life—the world and ourselves—can be improved without limit, by our own efforts.

Examples? Heinlein's *Beyond This Horizon* might qualify, although even then his streak of mysticism was showing. Fred Pohl's *Age of the Pussyfoot* was delightful. Pamela Sargent is not yet in their league, but she has the right spirit, as in *Cloned Lives* and the novella *The Renewal* (from Jack Dann's collection, *Immortal: Stories of the Transhuman Future*). Norman Spinrad's *Bug Jack Barron* was a vigorous effort. Alan Harrington made a good try with *Paradise I*, although for popular taste it may be too "arty" and not clearly upbeat. There aren't many others.

Strangely enough, *not one* story, to my knowledge, focuses directly on present-day cryonics. John Minahan wrote one *(Goodbye Darkness)* but the publisher, Pedersen, apparently backed out after dust jackets had been printed; it was a "main stream" novel, rather than science fiction. We are still waiting.

Meanwhile, some of us have already concluded that life is better than death. We have no great fear of death, like the character in the Burt Reynolds movie, who says, "Death is lying there with dirt in your face and holding your breath forever." Death isn't unpleasant, but it does narrow your options. The widest options are available only through cryonics. ■

Selected Bibliography

Ettinger, R.C.W. *The Prospect of Immortality,* Doubleday, 1964, *Man into Superman,* St. Martin's, 1972, "Cryonics and the Purpose of Life," *Christian Century,* Oct. 4, 1967

Feinberg, Gerald "Physics and Life Prolongation," *Physics Today,* Nov. 1966

Harrington, Alan *The Immortalist,* Random House, 1969

Hossmann, K.A. & Sato, K. "Recovery of Neuronal Function after Prolonged Cerebral Ischemia," *Science,* V 168, April 17, 1970

Robertson, Ralph D. & Jacob, Stanley W. "The Preservation of Intact Organs," *Advances in Surgery,* ed. Claude E. Welch, Yearbook Medical Publishers, Chicago, 1968

Rosenfeld, Albert *The Second Genesis,* Prentice-Hall, 1969, *Prolongevity,* Knopf, 1976

Strehler, Bernard "The Understanding and Control of the Aging Process," *Challenging Biological Problems,* ed. John Behnke, Oxford U. Press, 1972

Suda, Isamu et al "Viability of Long Term Frozen Cat Brain *in* vitro," Nature, vol. 212, Oct. 15, 1966

Whittingham, D.G. et al "Survival of Mouse Embryos Frozen to -196°C and -269°C," *Science,* vol. 178, pp. 411-414, 1972

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

MORE THAN LIFE

Looking into history, we see that humans were much the same as we are today, yet different. Looking into the future...

RONALD R. LAMBERT

Impish eyes, mouth smiling tight, spirit dancing in the light. Maryl. A thousand years Dayn had waited before settling on her for a permanent mate. Then, knowing her, he felt he could not live without her.

Her image moved before him, projected. She had a look of richness about her, like of gold in an era before matter duplicators. It messaged subliminally of health, primeval youth and vigor, and fullness of self-realization.

He resisted the temptation to activate the teleportal terminals which would give the image a computer-generated tactile realism as well. There was no sense in torturing himself. No matter how good the counterfeit, there would be no soul there, no Maryl. And it was Maryl he loved, not her similacrum.

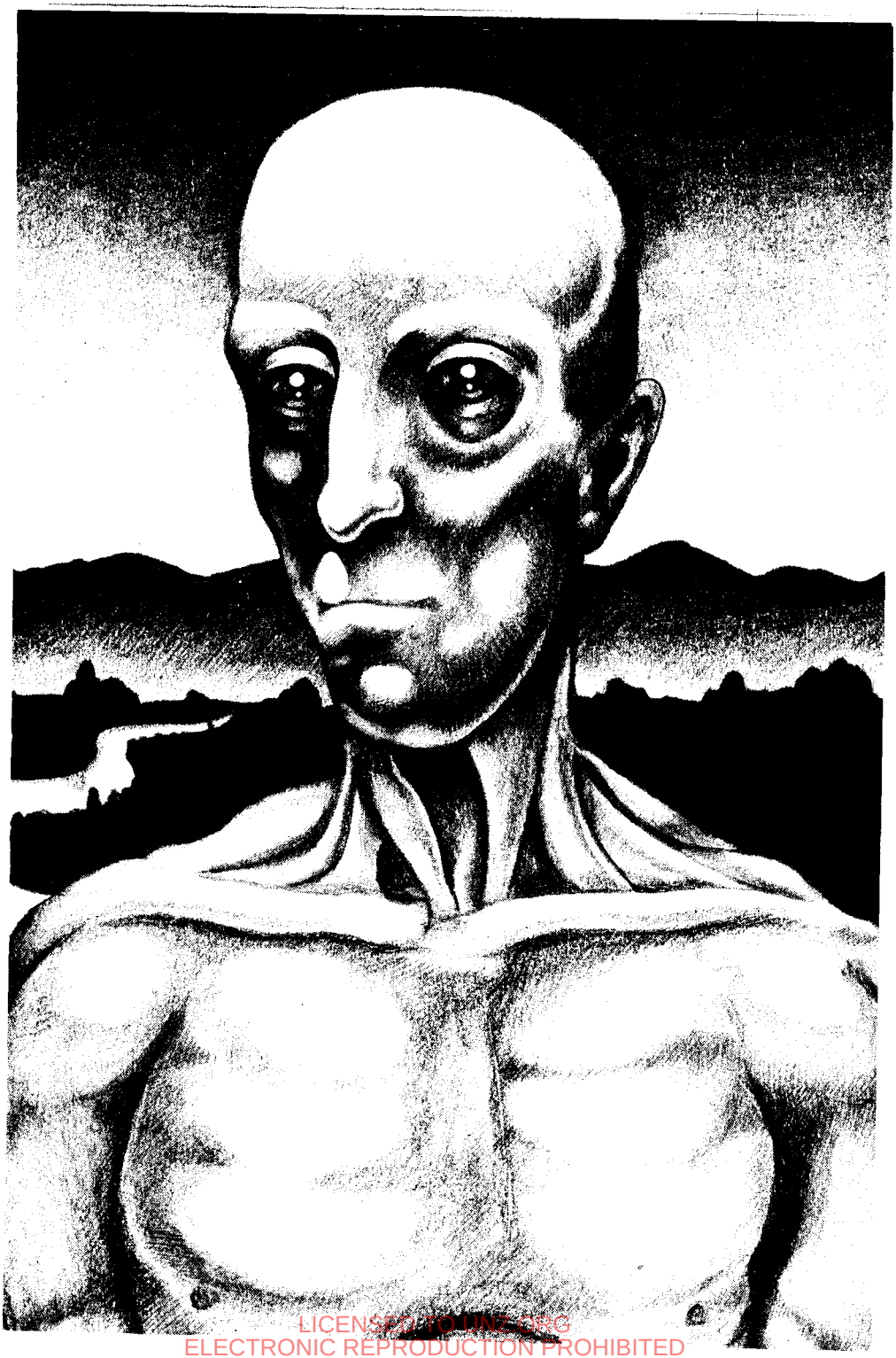
Even so, it became more than he could stand. Stricken, he turned away. The projectors stopped, obedient to his will.

She was gone. Not dead—he hoped. Just disappeared. But perhaps that was worse, for it might imply she had run out on him. He was not prepared to accept that possibility yet; he refused to think of it.

Again the nightmare came unbidden to his mind. They had been walking, two ever-young lovers sharing together the fragrant breezes of their private world's temperate zone savannah. She had seemed a little more moody than usual, but still was cheerful enough. He paused over a particular trick of biology he had never noticed before, and became engrossed

BRAD HAMANN

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



LICENSED TO JINE.ORG
ELECTRONIC REPRODUCTION PROHIBITED

in his study. When at length he looked up, she was nowhere to be seen. "Maryl?" he called—but his voice was lost in the vastness of the land. She must have become impatient and flitted away, he figured. But he felt a clutch of fear at his throat. A premonition? Uneasily he looked around again. She was gone, gone as if he had only dreamed her, then awakened.

In rebellion against the irrational sense of loss, he touched the control on his belt and flitted halfway around the planet to the high rocky plateau where Maryl had her Moorish castle. A chill wind whistled among crags and towers, and penetrated him with a sense of desolation. He hailed the castle's central computer, but Maryl had left no word for him there. No forwarding address.

Heart hammering, he flitted to her Byzantine palace, then to her Grecian arcade, her Persian palace, and all the other residences which she kept and changed like hats to suit her mood. But they were inert now, corpselike, bodies from which the spirit had departed.

Unhappily, he had returned to his own open-air savannah palace and resigned himself to wait for her return. Apparently she had gone off-world for some reason. That was not particularly unusual, for both of them frequently traveled singly in pursuance of some private enterprise. They roamed far and freely, for they were two free spirits, mated in love, not bondage. But the suddenness of her departure, the—horror of her disappearance, affected him so that no rationalization could banish his anxieties.

Days passed, then weeks, and finally one month gave way to the next. He could no longer sleep, and he knew that if he kept up this way, he would have to take the zoane renewal drug much sooner than the usual thirty year interval required. Decision was being forced on him. He would have to take action of some kind soon.

The holo projectors were still powered in stand-by mode. He directed the computer to shut them off completely—not that there was any shortage of energy, he simply felt it was more elegant to be frugal. Then he summoned a chair. When it arrived, he sank into its plush comfort. When he blinked, his lashes splashed.

Stars—he wanted to see the stars. At his will the rainbow roof of his palace deionized and rolled away. It was still daylight, but a new ion field formed, polarizing the light in successive stages to produce an effect like being deep down in a well, looking up. Thermal currents in the air moved nonrandomly, forming a giant lens in the sky that looked into space.

Andromeda sprawled mightily before his gaze, and he fought to clear his eyes. The constellation which had given the galaxy its name was not to be seen, of course. Those stars were back in the home galaxy. He viewed Andromeda from a vantage in the Lesser Magellanic Cloud, a satellite galaxy of the Milky Way. Viewed from any angle, Andromeda was majestic; a whirlpool of celestial splendor that

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

could not fail to be impressive. More than that, adding to the respect he felt for such manifest grandeur, Andromeda was the home galaxy of the Shayna. But his mind was not on those strange bright beings who had attained even higher than man.

Maryl! his heart cried. Where in space are you? Beneath that question lurked an unconscious, more hurting one: Why have you done this to me?

He tired of being patient. Resolve firmed in him, and he remembered his strength. Few humans anywhere equaled him in knowledge and power, for he was of the first generation to know zoane rejuvenation, and he had been a true self-motivated scholar from the beginning. Pride would not permit him to go on thus, waiting passively and suffering. He stood, purposeful, and the chair withdrew. His work must be set aside for a time, and his play, his learning, his development, and his engineering artisanship.

Maryl was gone—and he must go and find her.

There was a way of tracking her. Space travel normally was accomplished by flitting in successive jumps, and at the termination of each jump there was a brief flare of light, as a few stray captured tachyons converted to photons. With the proper sensing equipment, and a little luck, he might be able to pick up remnants of the flare from her first jump. The photons should be about two light-months now from their point of origin. Once he determined the flashpoint and lined it up with her point of departure on their planet where it was in space two months ago, he could then extrapolate her line of travel and follow it until he encountered the expanding light globe from her second flashpoint.

It would work, provided she had not turned off at an angle instead of going straight. But there was little likelihood that she had done that. Why should she deliberately try to be evasive?

His savannah palace was a big, sprawling affair with marble collonades, pools and fountains, amethyst towers, and subsurface storage chambers. It would also serve as a spaceship, once the proper boundary fields were established (with triplicate redundancy for safety's sake—after a millenium of life, he had developed a healthy respect for Murphy's Law).

All he had to do was tell his central computer system what he wanted, and the artificial intelligence that lived in symbiosis with him would take care of all the details involved in rigging his estate for space travel, activating the oxygen replenishers, navigational and astronomical equipment, and powering up the teleporters. Just the same, he checked over all the preparations personally. Even computers were not incapable of error.

As an additional safeguard, he gave the computer its orders verbally, not relying exclusively on the usual thought pickup capability possessed by the system. Many people, he knew, would think this wholly unnecessary. After all, the mechanism of thought pickup that sensed the associative holographic field generated by the hu-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

man mind (what used to be called the "aura") was quite reliable. But such people, generally, had not lived a thousand years; they did not appreciate what could go wrong, given sufficient time for mischance to occur.

The first stage of flight was slow and tedious, for he used antigravity thrusters to get him up above the planet's atmosphere. Had he teleported directly from the surface of the planet with such a large volume, the shockwave produced by the resulting implosion would have been powerful enough to cause severe damage to the surrounding countryside—and he was rather fond of his orchards.

That hadn't been a problem for Maryl. She apparently had taken off relying solely on her belt, for none of her palaces was missing. She liked to travel that way, seemingly naked to the stars. Unfortunately, that would make it harder for him to track her, because the magnitude of the jumpflash was proportional to the mass displaced. Besides her body, Maryl would have taken with her only the few cubic meters of air held by her belt's tractor field/deflector screen.

Eventually the atmospheric blue shaded to purple then darkened to the black vacuum of space, swaddled like velvet about the precious gemstone of their world. Glancing at the blue-splashed green globe streaked with milk, he whistled its name, the first six notes of Schubert's ninth symphony. Heavy and sonorous in the original composition, the six notes seemed to take on a wistfulness when played alone, a melodic expression of hope and desire, while yet retaining an undercurrent of majesty and confident power. The name seemed to fit their world better than any words could.

The melody rang jarringly now, however. It was too dissonant with reality. Only Maryl's return could make it ring true again.

Space flickered with the first test jump of a light-month, and their world seemed to implode into nothingness. Halcyon, their star, was a mere point of light, not particularly bright. The computer was satisfied with the results, and after monitoring the systems check himself, so was Dayn. He gave the order then to flit on to the point two light-months further on, where he would begin his sweep. Space flickered again, and he was there.

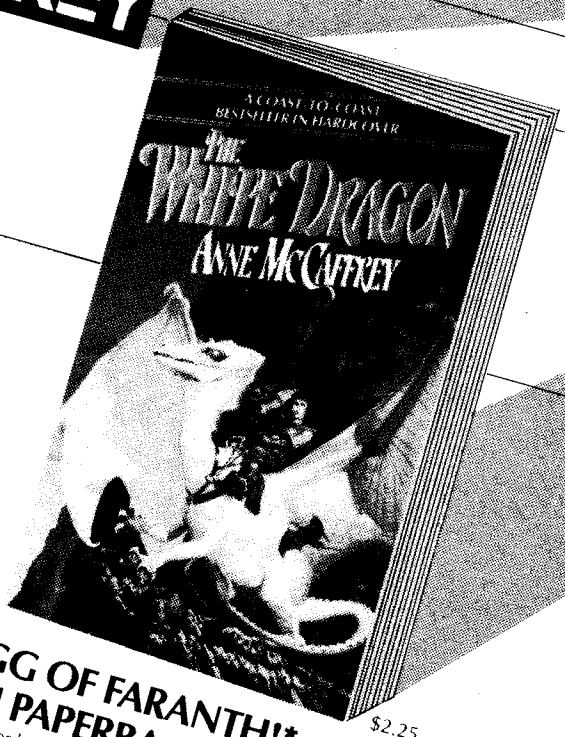
He only needed to sweep from six points in space surrounding the place where their world had been two months ago. Probably Maryl's first jump outworld had been the same as his—the standard one light-month. The spreading globe of photons from the jumpflash would be two light-months in radius at this distance, so from six points he should be able to cover all possibilities with a safe overlap.

What would be time consuming, however, was the sweep itself. He did not know the exact moment at which Maryl had jumped, so he had to allow for an error of one and one-half hours either way. Temporal considerations and the limitations of his detection

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

DEL REY

#1 Science Fiction and Fantasy Publisher in the Universe



$2.25

BY THE EGG OF FARANTH!*
AT LAST IN PAPERBACK!

Volume 3 of the super-bestselling series **The Dragonriders of Pern**

Bored with green dragons? Now meet fabulous gold, brown, bronze and blue dragons and — the one and only White Dragon! A hard-cover bestseller, finally in paperback, **The White Dragon** is Anne McCaffrey's long-awaited tale of Lord Jaxom of Pern and his telepathic fire-breather, Ruth — the White Dragon. By the shards of my dragon's egg, you'd better read it!

Published by Ballantine Books
A Division of Random House, Inc.

*Pernese Oath

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

equipment required that he travel at no more than three-fourths lightspeed, hence each sweep would take four hours.

Alternatively, he might have made his sweeps one light-month's distance from their world's former position, looking for the thin shell of light from the jumpflash that had passed back by their world and traveled a light-month beyond, but it would not have been any faster because of the simple geometry of the situation, and his detection equipment could operate more efficiently further away from the distractions of the Halcyon system.

He turned things over to the computer and fretted as hours passed.

It was on the third sweep, ten hours later, that his detection equipment sensed the light from the jumpflash. He awoke from a light doze at the computer's chime and sprang to his feet, instantly alert. There was not a whole lot for him to do at this point except issue new orders to the computer, but he was glad to have something to do at least, as a respite from the many hours—and weeks—of simply waiting.

The computer plotted a course from their world's position two months past to the flashpoint revealed by the light just encountered, and extrapolated beyond that to the next probable flashpoint where Maryl's belt flitter system would have taken her once it began functioning in continuous flitter mode. There was a flicker as Dayn's traveling home followed a parallel course, then almost immediately the computer announced confirmation—detection equipment sensed the expanding light globe from the second flashpoint. After this, he gave his computer free rein, and it followed the course of Maryl's flitting at high speed.

Suddenly everything stopped. Before he could frame the inquiry, the computer announced: "Lost acquisition. Shall I resume sweep from last point of confirmation?"

Dayn thought a minute. "No," he replied. With jumps now a light-year apart, it would take ages to sweep the enormous globular area required, especially since if Maryl were really trying to be evasive, she could have varied the length of her jump by a large margin. Was she really trying to evade him? The thought hurt, but there was no other explanation he could think of to explain reasonably her abrupt change of course. Maryl had never been one to change her destination in mid-flight—at least, not before.

But that thought itself gave him an inspiration. Suppose she had all of a sudden decided not to change her destination, but simply to obscure her course, to throw off pursuit (he swallowed)? If that were the case, then he could extrapolate the course indicated so far by her initial flashpoints, and presumably no matter where she went by way of detour, he would still rendezvous with her at her ultimate destination.

All he had to do was extrapolate the course, and guess where along that

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

course she would have been going.

After a few moments, the computer finished its calculations and displayed in a holo-projected graph the possibilities. He immediately dismissed the first few possibilities as planetless stars or star systems lacking in conceivable interest to Maryl—she was not expert in terraforming, and the planets involved required extensive terraforming. Nor did they have alien forms of life that would be of interest to her.

In fact, there was nothing in this galaxy he would adjudge to have been her destination. Extended further out into space, then, the line reached toward the Home galaxy. Intuitively, he ordered the computer to jump ahead in its extrapolation. Sure enough. He had guessed right. That had to be it. At the end of the line, where he hoped to find Maryl, was Earth—the ancestral home of humankind.

He frowned. Earth was a festival planet. Why should she go there, when there were many festival planets much closer to home? Personally, he did not care for Earth, the way its society was presently organized. It was undeniably a cultural center and place for technological exchange. Many alien scholars came to Earth to study the artifacts of human history first-hand. But these points of interest were outweighed in his mind by the frivolity of the continuous carnival atmosphere and by the passé authoritarianism of the oligarchs. Most festival planets had open festival only during certain cycles of the year, and the governance was much more pragmatic. Maryl had always seemed to share his feelings about this in the past.

This was the inexplicable present, however, and all bets were off. If Maryl, who loved him, had run off and left him, then all of life's certainties were shaken, and anything and anyone could change—even Maryl, and everything in her personality he had always taken for granted as being distinctly *her*. It was a nightmarish horror that he felt, which wakefulness would not banish. Gibbering, insane terror lurked in the dark depths of his soul, suppressed from conscious awareness: Was it possible that he himself, then, might also be changeable and inconstant? Where then were his reference points, if even himself might at any moment become something radically different? Dayn was unaware of how fundamentally Maryl's desertion had affected him, but the emotions welling up from this unseen root were dark and tragic.

With effort, he bestirred himself to take action. To Earth, then.

Even at maximum rate of flitting the distance back to the home galaxy was so great that long hours were required for the transit. Close at hand the stars streaked past, further away they were bright glaring points that seemed to keep pace with him for a time, then slipped to the stern. Andromeda seemed to hang stationary in space, aloof in haughty grandeur from such mundane things as apparent motion. But an interesting effect showed

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

itself in spiral nebulae to the rear. As he traveled with an apparent velocity many multiples of the speed of light, he passed wavefront after wavefront of light from the galaxies, and saw, as if in some incredibly slow time-lapse photography, the majestic turning of the spiral arms, like great splendorous pinwheels about their shining egg hubs. Rotation was not so readily apparent in the more diffuse oblate galaxies, but still could be discerned in the shifting luminosities and bands of shadow.

Home galaxy ahead showed a similarly subdued effect, for it was also a diffuse galaxy without well-defined spiral arms. But as he drew nearer, he could see the shifting patterns of constellations unimagined, and the sweep of dark gaseous nebulae roiling in complicated eddy forms, like cancers on the egg of life.

That last thought shook him with its morbidity. Strange—he had never felt that reaction before to this sight. From what depths within him had such macabre poetic insight arisen?

It did not matter, he told himself, and shook his head to clear it of such thoughts. It was an absurd gesture, but he had not succeeded in breaking himself of the habit in a millenium of life.

Home galaxy steadily expanded, becoming again the Milky Way as he looked toward the galactic center, and he plunged into a sky full of stars.

Sol was located about two-thirds of the way out from the galactic center, close to the equatorial plane. Despite his dislike for the current social structure on Earth, the yellow-white light of Earth's sun was inviting. It seemed to have a special warmth, a cheeriness, that could not be defined strictly in terms of spectra. It was, after all, the star that nurtured life on Earth; the light in humanity's childhood sky. However far man might roam or vast his domain might be, there would always be something special for him in the light of Sol. It made Dayn feel a little better.

But only a little. He was only moments from Earth. Soon he would know if his guess had been correct. And if Maryl was here? What then? What would he say to her when he found her? He could not begin to imagine what she might say to him.

There was something he had to know, if he learned anything— he had to ask her why she had left him so abruptly. And why she had been deliberately evasive in her course. Didn't she still love him? Had he done something wrong? An explanation—he had to have an explanation above all else. Even if—it was over between them, still, at least he had to know why. His sense of reality required it.

The computer inserted his palace into a parking orbit high above Earth's surface. The white-swirled blue face of the planet was a vast panorama below. Landmasses showed up as pale green or tan. Dayn spotted the eastern coast of what had been the United States before the diaspora, and looked along it until he saw Chesapeake Bay. He followed the Potomac River until

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

his eyes encountered the gemstone boundaries of the District of Columbia, the diamond/square perimeter gleaming festively with decorative glow-fields when he magnified the view.

By Dayn's standards, Earth was a terribly crowded planet, with close to a million permanent residents and who knows how many transients visiting the festival. The worst of the crowding would be in the former seat of the American government, but that is where he had to go first to pick up a lead on Maryl. The oligarchs maintained a welcoming committee in the park across from the Capitol Building, by means of which they kept track of every visitor to Earth's festival. Ostensibly this was to enable them to provide a locating service, helping people to look up old acquaintances or make business contacts. Dayn suspected that they did it simply to feed their egos with a semblance of control over the masses. The oligarchs were a pathetic bunch, whom the natives probably tolerated merely out of pity. But he couldn't help recalling the old adage, "The people deserve the government they get."

He sighed resignedly and hailed the Welcommittee as per regulations, then flitted down to the park.

The office area was set up in the middle among some ancient elms. He wondered if they treated the trees with some kind of zoane derivative. Earthians were noted for their sentimental attachments to anything and everything having to do with their glorious antiquity. Although if he remembered right, back in the days when zoane was first introduced, there had been a nationwide epidemic of Dutch Elm disease, so these trees growing here now were probably ones that had been planted after the first beginnings of the diaspora.

He passed by holo tanks which displayed scenic attractions of Earth's various countries. They were designed to appeal especially to people interested in discovering their ethnic origins. A Japanese couple stood gazing intently at a scene depicting a quaint Japanese village with blossoming cherry trees in the foreground and majestic Mount Fuji in the background. Arm in arm, they nodded to each other and then touched their belts, flitting away presumably to visit the land of their honorable ancestors.

The sight of the couple gave him a pang, reminding him poignantly of the empty place in his life caused by Maryl's mysterious departure. He turned from the holo tanks and hurried his steps up to the area where the receptionists' desks were.

For some obscure reason, he found himself waiting before the desk of an especially attractive lady, even though a couple of other desks had no people standing before them and he could have registered with those receptionists without waiting.

The man ahead of him finished and wandered off, and Dayn stepped up to meet the brightly smiling redhead. She had a fullness of figure that he found disquieting. He had always

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

wondered about this physical type of woman—he had to remind himself he was married and rather desperately seeking the woman he loved. But despite his surpassing need for Maryl, he still felt torn by an instinctive desire for this woman. It was frustrating. It was the kind of frustration he had sought to escape when he took Maryl clear out to the Halcyon system in the Lesser Magellanic Cloud. Now that he was back among people again, he had to suffer the frustrations of life again.

She had a soft voice that jolted him like an unexpected caress. He managed a weak smile and gave her the information she requested.

"First generation!" she remarked when he told her. Her look was admiring, and she seemed to turn on some extra attraction, like a psychic tractor beam. "Is there anything I can do for you?" There seemed to be more in her offer than merely giving him directions.

He swallowed to clear his throat. "Uh—yes. I'm looking for someone, I think she may be on Earth." The woman's face fell at the use of the feminine pronoun, but only slightly.

There was no way to tell from the name alone that Maryl was his wife, and for some reason he found himself unable to mention the fact that she was.

The receptionist consulted a small computer for a moment then looked up. "Yes, she is here. Arrived about two months ago, and applied for permanent residency. She's currently connected with the Smithsonian Institute for the Performing Arts, in the capacity of actress in the Live Theatre Dramatics department."

Dayn stared at her stupified. Maryl had taken up acting?

"Does that help you?" the receptionist asked, anxious to please.

"Oh—yes. That's what I wanted to know. Thank you very much M.—"

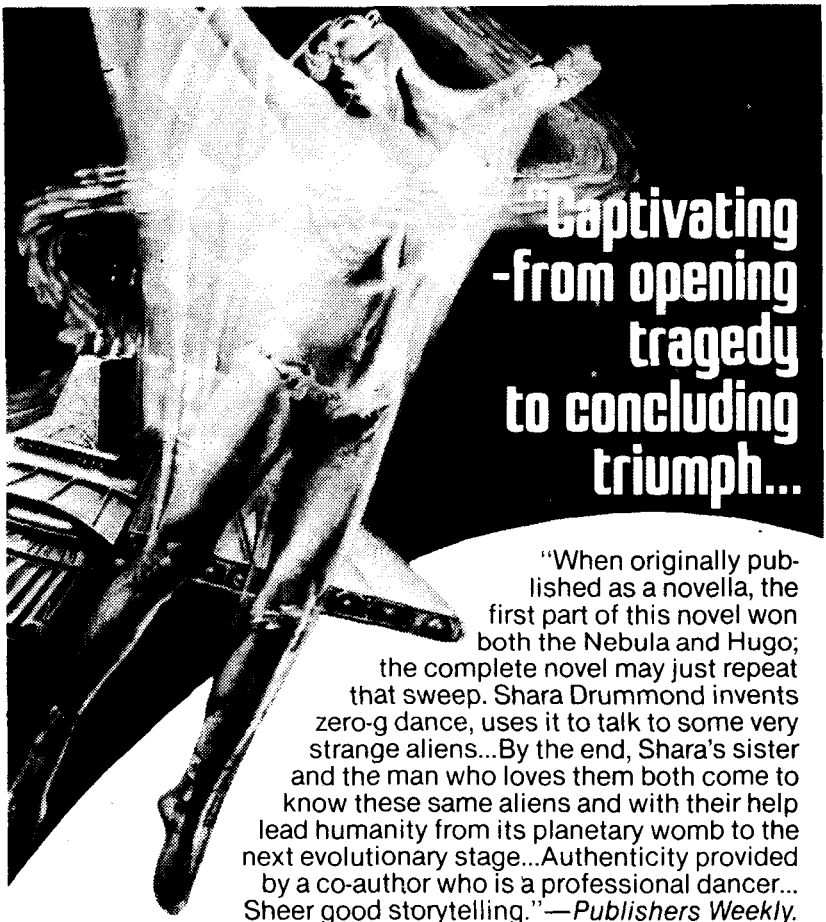
"Kiley. Pat Kiley," the woman supplied the name, smiling warmly again. As Dayn turned to go, she called after him, "If there's anything else you need, look me up—I'll be glad to help you any way I can."

Now he was sure there was more in her offer than merely giving directions. He smiled and waved in acknowledgement before he flitted off.

Now he stood before the entrance to the Smithsonian performing arts branch. Why had he behaved like that with the receptionist? He should have told her he was married, and that would be the end of it. But—he had not wanted to. While he had done nothing wrong, still he felt vaguely guilty about it. He shrugged and shook his head to clear it of the thoughts.

The marble stairway was so broad it was more like a terrace, leading up to the building's entrance. There a row of twelve old-fashioned revolving doors swallowed and spat out pedestrians while preserving the state of entropy between the cool, climate controlled interior and the warm, slightly muggy natural climate outdoors. Smiling at the quaint touch, he ascended the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



Captivating -from opening tragedy to concluding triumph...

"When originally published as a novella, the first part of this novel won both the Nebula and Hugo; the complete novel may just repeat that sweep. Shara Drummond invents zero-g dance, uses it to talk to some very strange aliens...By the end, Shara's sister and the man who loves them both come to know these same aliens and with their help lead humanity from its planetary womb to the next evolutionary stage...Authenticity provided by a co-author who is a professional dancer... Sheer good storytelling."—*Publishers Weekly.*
A Selection of The Science Fiction Book Club. $8.95

SPIDER AND JEANNE ROBINSON

Stardance

QUANTUM SCIENCE FICTION

The Dial Press/James Wade

THE DIAL PRESS DELL PUBLISHING CO., INC.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

steps, wondering what he would find.

The foyer walls were gold-plated, and the primitive incandescents seemed to fill the whole volume of space with an optical richness that was at once breath-taking and pleasing. Corridors emanated from the foyer, their entrances canopied with holographic projections that gave directions and listed scheduled performances, showings, and exhibitions. He found the directions to the place he wanted to go, and walked through them into the corridor.

A glowing green light on the wall to his right indicated that a computer audio sensor was ready for instructions.

"Live Theatre Dramatics, Stage 23-A," he stated.

A small, relatively unobtrusive sign materialized in front of him, and as he moved, it moved, leading the way. As he passed an intersection with a corridor from another entrance, a yellowish, swirling light caught his eye. He looked down the other corridor and saw the shifting, brightly glowing plasmoid "body" of a Shayna, advancing toward him.

Dayn's eyebrows raised in surprise, and he stood aside respectfully.

The being paused as it passed by him, and although it had no face or obvious sensory organs, it somehow *seemed* to turn its attention on Dayn. He nodded. "Greetings Shayna."

Shayna communicated with humans by means of modulated microwaves, which acted directly on the human central nervous system. Words formed in his head, accompanied by a slight buzzing hum. "Greetings, human," it returned. "I perceive by your precursor that you are going to the same place I am. Are you a regular attendant here at these dramatic performances?"

Dayn blinked, not quite sure what to make of the Shayna's uncharacteristic talkativeness. Normally they were taciturn aloof observers of humans and human doings. Without thinking, he answered frankly. "No, I'm looking for my wife. She took off all of a sudden, inexplicably, and I just found out she is here—acting!"

Then, suddenly somewhat embarrassed, he was impelled to change the subject by asking quickly, "What interest do you have in human dramatic theatre? I thought you Shayna devoted yourselves to the study of more—profound—matters."

"I am studying a matter of both interest and profundity. Not the dramatics themselves, necessarily, but what they represent concerning the psychic development of your race. I am looking for a cusp, and this seems like a logical place to find it." Then the Shayna paused, silent, apparently thinking. Abruptly it spoke again, as if correcting itself. "Perhaps your own experience may be relevant to my study. Forgive me—that being a possibility, I should say no more to you for the time being, lest I prejudice the outcome. I wish you well, human. Excuse me."

With that, the alien flitted away, suddenly disappearing from sight. The

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

departure was soundless, which mildly surprised Dayn. He had half expected the Shayna to flit out into space, which would have displaced an equal volume of vacuum to the place he had vacated. But there was no implosion of air before Dayn. The Shayna had flitted elsewhere on Earth, someplace where the air pressure was exactly the same as it was here in this corridor.

Dayn shrugged, baffled and slightly annoyed. Unquestionably, Shayna were more advanced than humans, so it was not surprising that they should be aloof and at times condescending. But why did they have to be so damned enigmatic? Wrinkling his nose at a slight ozone smell lingering in the air, he turned and continued on his way.

The amphitheatre was not large, but the audience was even smaller—a bare sprinkling of spectators reclined in the plush, widely-spaced easy chairs. He smiled briefly, recalling the enjambment of seats that characterized auditoriums back in the days before the diaspora. Cacophanic music and lugubrious drumrolls heralded the start of the next act, and he quickly found a seat, just as the heavy stage curtains swirled aside.

At first, there was no sign of Maryl on the set. But a few minutes into the first scene, a woman strode regally in from stage right, attired in the tiara and gown of a queen. Dayn had not bothered to consult the program guide closely before he entered, and he did not know who she was supposed to be. Certainly not Queen Elizabeth (I or II). Perhaps Queen Caroline?

It did not matter. What mattered was that when she turned full face to the audience, he realized it was Maryl. His heart hammered.

On impulse, he almost flitted up to the stage beside her, but even as his hand reached toward his belt, he thought better of it. Disrupting the play would be disrespectful to the people watching the play and to the players themselves. It would also be disrespectful to Maryl. He had no right to interrupt her. So he waited impatiently as the play ran its course.

Finally the curtain closed the last time. Even before it was fully closed, he flitted to the stage. The players were exiting on stage left into a corridor. Among them was Maryl. She chanced to glance back his way just as she was about to step through the door. A strange expression came across her face. Was it fear? She put her hand to her mouth, staring at him, then bolted through the door.

"Wait!" Dayn shouted, not caring what the people on the other side of the curtain might think. She did not wait. She did not reappear. He ran after her.

The corridor extended in both directions beyond the door. One way it passed behind the stage and presumably communicated with the antechamber on stage right. Likely the dressing rooms were in the other direction. He ignored one of the male actors standing before him and took off down the hall, determined to search every room if necessary.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Hey! You can't—" began the actor, who activated some kind of security device.

Abruptly Dayn felt the resistance of a restraining field. Automatically he neutralized it and charged on, not even bothering to speak to the actor, who stood open-mouthed with astonishment. Apparently Dayn's personal level of technology was higher than that common on Earth, at least with respect to the manipulation of fields. This was not surprising, especially. He was an elder of the first generation, and he had been a physicist in the beginning.

Callous to his own wanton breach of etiquette, he flitted boldly into and out of every room in the corridor, not even pausing to apologize for his intrusions to the people he encountered.

Suddenly, up ahead in the corridor, the luminous cloud of a Shayna appeared. (Was it the same one? Who could tell?) The Shayna spoke to him. "The one whom you seek is in here, human." A tenuous filament of light reached out and struck sparks on a door.

Dayn skipped the intervening doors and flitted inside the indicated room, pausing for only the barest moment to look curiously at the Shayna. Surprisingly, the Shayna flitted into the room with him, but he had no attention to spare for the alien. Maryl stood before him, still in theatrical makeup and garb. She was clutching at her instrument belt, which she hadn't had time yet to put on.

Quickly, as he had when he encountered the restraining field in the backstage corridor, he called on the resources of his instrument belt, and neutralized her belt's flitter mechanism. When her belt failed to function, she realized what had happened, and took a step backward.

"Maryl—please, what's the matter?" Dayn's tone was compassionate, not indignant.

She turned away and hid her face, then sobbing, she sank to her knees on the floor. Instinctively he went to her and took her in his arms. At first she flinched, then she collapsed in tears, burying her face in his chest.

Empathy made him grief-stricken. "Maryl, won't you please at least tell me," he said with tears in his eyes. "Why did you leave? Did I do something wrong? Something to displease you?"

"No," came the muffled murmur against his chest.

"But *why*, then?"

"I don't know!" she moaned.

"Well—why did you deliberately take an evasive course when you left?"

"I—I. . . ." her voice trailed off.

He swallowed, and asked the question most painful of all for him to utter: "Don't you love me any more?"

She was silent for a moment, then burst into tears anew. "Yes!" she cried.

Dayn was totally baffled. He had thought that after a thousand years of life, he had become pretty familiar with the human species to which he

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

belonged, enough to understand all the things that could motivate men and women. But he was at a complete loss to understand what moved Maryl.

"Why, when you saw me on the stage, when you were exiting into the corridor, did you look at me like you did, and run off?" he asked her next.

She pressed her face harder into his chest.

Gently but firmly, he took hold of her shoulders and pushed her back, so that she was obligated to look up. Slowly, reluctantly, her eyes met his. Finally she answered him. "I felt guilty. Because I knew I had hurt you. And I didn't even know why! I couldn't face you—" She bit her lip and closed her eyes, squeezing out a stream of tears.

Suddenly the voice of the Shayna sounded in their heads. "This is a momentous occasion for your species, and for me that I have been here to behold it."

Dayn and Maryl both looked around at the Shayna, startled speechless.

"This is the cusp that I told you I was hoping to find," the alien went on. "It is the crucial coming to crisis of a basic developmental tendency in your psyches."

"Can you explain this?" Dayn inquired hopefully, suppressing his annoyance at the Shayna's continued enigmatic talk.

"Yes—I will be glad to. This is why I came, so I could lend a helping hand—so to speak—when you reached your cusp. Consider the things that motivate humans. The ultimate motivations. I do not mean biological urges, I mean the totally spiritual, psychic motivations. Man, in more primitive times, threatened on every hand by nature, by wild beasts, by inexplicable workings of the universe that produce disasters, diseases, mischance—desires power. That, first of all. So he sets about in quest of power. Power over his own environment, over himself, even over the "gods" of chance and mischance that cause droughts and floods and good luck. He seeks omnipotence. For the sake of his own desire for ultimate security, he seeks ultimate power.

"Omnipotence, of course, is an unattainable ideal. But it is an ever-receding horizon toward which man ever quests."

Dayn and Maryl exchanged looks. He gave a slight shrug and looked back toward the Shayna.

"Somewhere along the line," the alien continued, paying scant attention to his listeners' distraction, "man realizes that the path to power lies along the course of knowledge. To speak in terms of ideals, he realizes that omniscience is a prerequisite for omnipotence. Knowledge is power, as anyone who lives long in this universe knows.

"This has been the extent of human spiritual development until now. Man has been questing after the ever-receding horizons of omnipotence and omniscience, ever seeking greater knowledge, ever seeking greater power.

"But as with every sentient species,

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

eventually you must come to the point—the cusp—where you realize that in order to have omniscience, you must have omnipresence. This is the revelation only now dawning on you. Power is unattainable without knowledge, and knowledge is unattainable without transcendence of your finite limitations. This is nothing new, of course. The tendency has always been there, evidenced in your development of mathematics, and remote sensing devices or sense-enhancing devices. But it has been a subtle thread in the weave of your psyche until now.

"We Shayna have known for some time that you were approaching your cusp. The desire for omnipresence has been growing stronger in your race for the past twelve hundred of your years, evidenced in the rise of fiction writing and reading, and all the other forms of vicarious living and knowing reality from different viewpoints. Motion pictures, television, dramatics—both as spectators and as actors—are manifestations of this desire to expand beyond the confines of one's own life.

"The woman has finally reached the point where this desire has become dominant. What has been covert in your psyches for centuries has now broken out into the open. A new basic motivation must be recognized by man as being a part of human nature."

When the Shayna was silent for a few moments, Dayn asked, "But what do we do about it? If the desire for omnipresence is at the root of all this, as you say it is, then how do we go about satisfying it?"

The Shayna replied, "Omnipresence too is an ideal, unattainable, but it is a receding horizon toward which one may quest."

Giving way to mounting exasperation, Dayn burst out, "But how the hell do you 'quest' toward omnipresence?"

A soft shimmer of light passed over the surface of the Shayna. Then it spoke again. "You have the technology. You have computers of sufficient sophistication. You have teleporter terminals, computer-generated solid matter projections. You have mind-link capability with computers. Use your imagination. That's why God gave it to you." Again the shimmer of light passed over the surface of the Shayna.

Dayn had already opened his mouth to frame an angry retort, when a sudden insight smote him. He understood in a flash what the Shayna meant. And it was possible. Why hadn't anyone thought of it before?

He looked at Maryl, caught her arm and squeezed it. "Maryl—I think the Shayna's got something. We can mind link with computer-generated similacrums, and with the proper feed-back arrangements, it would be like we were in two places at once!"

Conflicting expressions of hope and disbelief crossed her face. "How could we manage it? I mean, the limitations of our brains—"

"Could be overcome by the computer," he reminded her. "The computers could supply all the mental

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

capacity we need to keep track of multiple identities, simultaneous differentiated awarenesses—multiple *presences*." The thought awed him.

"You are taking the first major step toward omnipresence," the Shayna said approvingly.

Dayn suddenly thought of something else. "Shayna—you have known about this kind of thing all along. You must have already taken this step—perhaps you are even several steps beyond."

"There are five billion Shayna. We are distinct, individual persons. And yet we are all one. I am aware of each one of my five billion selves."

Dayn gazed at the Shayna in stunned silence at this disclosure.

Maryl giggled. He turned to her and she observed, "Some people have difficulty accepting the Christian concept of the Trinity—three distinct Persons who are yet one God."

And the Shayna—it went without saying!

"By the way," said the Shayna, "a number of humans in an agitated state are attempting to flit into this room

ATTENTION SCIENCE FICTION analog SCIENCE FACT SUBSCRIBERS

Notify ANALOG (and Post Office) when you move. For fastest service on address change and any complaint, attach an old Analog mailing label or print clearly your old address here.

OLD ADDRESS (attach label here if available)

Name (please print)

Address

City Zip

State

Print your NEW ADDRESS here, including Zip Code. Allow 8 weeks for change to become effective.

Name (please print) Apt.

Address

City Zip

State

☐ 1 year: $10.00
☐ 2 years: $18.00
☐ 3 years: $25.00

These rates for U.S. & Possessions. Canada and Mexico, add $2.00 per year; elsewhere, Analog is $13.00 per year.

☐ new subscription
☐ renewal

☐ Payment enclosed (Make check or money order payable to Analog)

analog Box 5205 Boulder, Colorado 80323

3001

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

I've been keeping them out until now."

Dayn felt his face flash. "Uh, yeah, I can imagine who that might be. I think I'd best flit on up to my palace. Maryl? Will you come with me?"

She smiled, eyes dry now but still reddened. "Yes. Of course."

Dayn paused to address the Shayna one last time. "Thank you, Shayna."

"My pleasure," replied the alien. Then the strange shimmer of light passed over the Shayna again. Dayn made a mental note to find out precisely what that meant, someday.

He put his arm around his wife, and took her home.

They walk hand in hand in the gentle grass, savoring the sweet scents and glad, glorious colors of their flowering orchards. This is truly their world, and they are at home together upon it.

Dayn rallied his compatriots for one final assault on the rogue stronghold, and succeeded, freeing three systems from the domination of first-generation elders who had criminally used their advantage in knowledge and power to subjugate others. The megalomaniacs were severely punished.

She wrought. Maryl wrought on the traditional mediums—canvas, clay, and marble. And she wrought on the more modern, untraditional mediums—live motion holos, computer-generated dramatic plays and symphonies. Her wide-ranging talent was hailed on a dozen festival worlds. She made frequent guest appearances, basking in the limelight.

He approached the heart of the star, protective devices straining to their utmost. What Dayn found there confirmed a theory he had been entertaining about time reversal and afforded a broad new insight into the subject of causality.

Maryl swam the seas of Earth, her body aquatically adapted. Plumbing the utmost depths of the Atlantic Trench, she encountered sentient creatures. To them, she was an alien from another world. It upset their religious beliefs.

Pat Kiley nestled pleasantly against Dayn. The receptionist he had encountered on Earth had been no disappointment to his anticipations. He had always wondered about this physical type of woman, and now he was finding out, deliciously.

Mat Sturnman was a strong man, powerfully built, like a Greek god. He held his bronze body against Maryl's, and she thrilled. Mat was a good man as well as strong. She loved Dayn, of course. But she also loved Mat. They would have a good life together.

Dayn and Maryl enjoy their world together. Frequently he bends and kisses her. Frequently she pulls him to her and kisses him. The orchard is enticing.

"Aren't the apple blossoms lovely?" she observes.

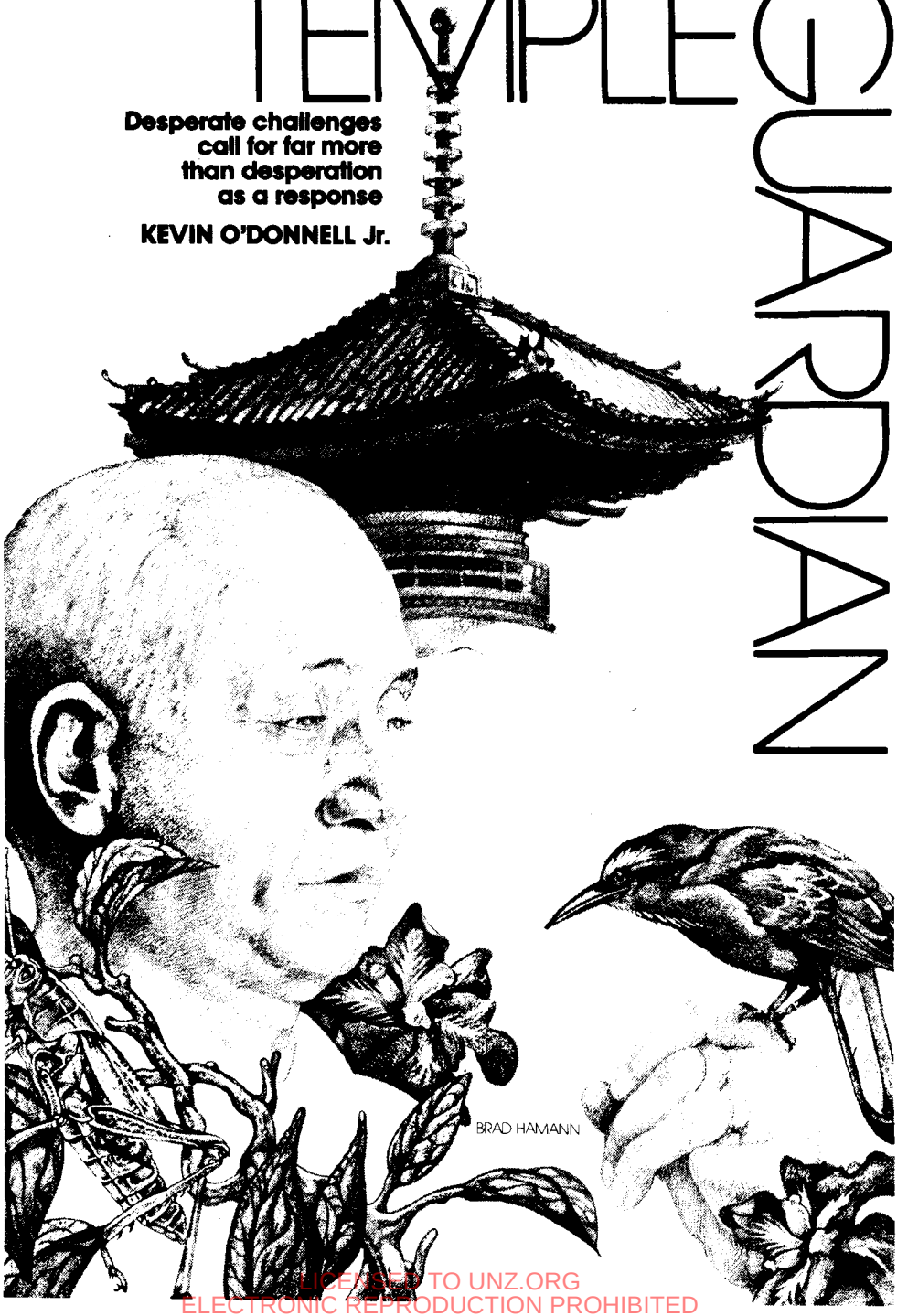
He nods agreement. Then, stretching himself grandly, he says, "You know, I like the *feel* of spring!" ■

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

TEMPLE GUARDIAN

Desperate challenges call for far more than desperation as a response

KEVIN O'DONNELL Jr.



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

The old man was in the bamboo grove, brushing dead leaves off the moss. What little hair he had left was short, and shockingly white—he'd stopped dying it when he'd retired. His face was lined, and dark from the sun. His clothes were neat and clean, but shabby. As the broom whispered through strokes that left the emerald moss unbruised, he frowned, and tried to decide why he was tidying a world that would be dead in a month.

"Father!"

His turn embodied the slow dignity of his age. A warm smile crossed his face when he caught sight of his son, Mitsugushi Fujio. *Remarkable how he resembles his uncle,* he thought. *Both so tall, so lean, so literal . . .* "Fujio," he said, "it's good to see you. And you're a colonel now, excellent, excellent. No wife yet, though, eh? No, stay there—you have not learned how to walk on moss without crushing it." Carrying the broom, he slipped between the swollen trunks of the twenty-meter bamboo. He was careful not to break any new shoots.

"That's a job for a young acolyte, Father." Even bowing, he seemed to tower over the old man.

"Mitsugushi Hideo is too eminent to work with his hands?" He chuckled, but sobered quickly. "There are no acolytes, Fujio—not anymore. The young are either cynical, or obsessed with the future. The past is for the old to preserve."

Fujio glanced at his watch. "Speaking of preservation—"

"You have come to see if I know how to operate the force sphere?"

"Yes."

"Why is it that the young assume such incapability on the part of their elders? The switch is simple—on, off—and clearly marked. My desktop computer was more complicated, and nobody questioned my ability to operate *that.* But then, few question a man while he chairs the board of a trillion-yen company—it is only after he retires that the condescension begins." He gestured up the winding path. "Come," he said, "let us go to the shrine."

Fujio fell in behind him. "It's quiet here." His deep voice was hushed.

"Hard to believe three million people live down there, eh?" The old man waved downslope, in the general direction of Kyoto, his favorite city. A breeze kissed his palm. "They used to visit us more frequently," he said, panting a bit, for the hillside was steep and the path was white gravel, "but now—" From behind, his shrug was eloquent.

"How is Brother Katsumi?"

"Dead these three years."

Fujio winced. "That long?"

"Longer."

"You could telephone."

"With the exception of your force sphere," said Mitsugushi Hideo, looking back over his shoulder, "there are no Western devices on the premises of the Inari Shrine."

"No television?"

"No."

"You used to have eight."

"I used to need them."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Mixed with the gravel were brown pine needles, fallen from the massive trees that lined the path and cooled it with their thick shade, and the needles softened the gritty crunches of the two men's feet. The air was sharp with resin. Though the hillside faced southwest, it was cool and dry, not at all like the city below, where bus riders left puddles of sweat on plastic seats, and the air was thick enough to drink.

Mitsugushi Hideo stopped by a soaring pine, and patted its time-cleft trunk fondly. "Legend has it," he said, "that this tree was planted by the Abbot Kunichika in 794, when the Emperor Kammu established his capital here."

He craned his neck to see its top. "That would make it a very old tree."

"And too precious to lose to—what are they, anyway?"

"We don't know," admitted Fujio. Insigniae glittered as he loosened his collar. "Automatic alien machines, that's all we know."

Hideo nodded. "And they are due to arrive—?"

"It will take them another five days to finish with the Moon, three days to prepare for departure . . . nine days, all told." Stooping, he picked up a pine cone, and turned it over and over in his broad palm as though he'd never seen one before. "We don't know if they'll land *here*, though—they ignored Deimos and Phobos—"

"Those are too small to bother with."

"Titania, too, and its surface area is much larger than Japan's."

"You're assuming they won't cross water."

"Yes." His long face sombered. "If only we could find out more about them."

"What are they looking for?" Hideo stepped away from the tree, and resumed his upward walk. His stride was deliberate, yet graceful.

"We don't know—they appear to pulverize the soil down to the bedrock—we're taking samples of Moon soil they've finished with. Analyzing them might tell us what they've extracted from it, or added to it . . . but the changes are so subtle that the analyses won't be complete until long after the aliens have left Earth."

Rounding a bend, they came upon a weather-beaten flight of wooden stairs. Hideo supported himself on the swaying bannister.

"These should be repaired," said Fujio, who had never tolerated imperfection.

"If there were money, then they would be."

"Your pension?"

"It is administered by the Abbot, in Nara."

"I see."

At the top the land flattened out for a hundred yards of grass and gardens; behind them, grey and wooden, sat the humble Inari Shrine. The two men advanced upon it in thoughtful silence. Their feet slipped comfortably into the hollows of the stone steps. The grotesque temple guardians, eight feet tall and so long unpainted that they were more meditative than fero-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

cious, gazed blankly down when they passed.

"Have you tried it yet?" Fujio had to duck to enter the small room behind the altar.

"Briefly. Did you not notice the mutilation of the pines outside?"

"No, but it doesn't surprise me. Didn't they warn you?"

"Of course they warned me—and I expected it to happen—but it is always painful to see a friend lose his arms."

"Did you paint over the stumps?"

"Would you have me watch them bleed to death?" He lifted a lantern from its hook by the door and padded forward, driving the darkness into the corners. "Here is your machine."

There were actually two devices on the floor before them: a metal-plated cube, six feet on a side, and a coffin-shaped object about three feet long that lay next to it, and that was attached to it by a thick bundle of wires. Hideo set the lantern on top of the cube.

"You know, Father—" Fujio cleared the embarrassment out of his throat, "—the larger one is a generator; it can supply you with all the power—"

"Fujio!" The old man was scowling. "You forget that Mitsugushi, Inc. was the first to manufacture this machine—I know well both what it is and what it can do. I do not use it because I *choose* not to use it."

"Forgive me, I spoke thoughtlessly." He put his hands on his hips and stared at the two objects. "Shall we test it?"

"If that will please you."

"Thank you." He reached for the generator's control switch, and pushed it down. The displays lit up immediately. He ran his practiced eye along them. Satisfied that it was functioning properly, he pressed a red button on the coffin's top, then touched his jaw as an inaudible vibration rattled the fillings in his teeth. The second set of dials was also in the green, and he nodded. "Let's go outside."

"Very well." He replaced the lantern on its hook, and led the way to the sunshine.

"How many people will be sheltering with you?"

"As far as I know, none."

His eyebrows were black arches of surprise. "But—"

"In accord with the directives issued by the Ministry of Culture governing the provision of force spheres to nonprofit organizations administering sites and structures of historical or cultural value—" he paused for breath, and winked, as if he'd machine-gunned off the jargon just to show that he was still its master "—I put ads in the local papers. They stated that the first one hundred people wishing to shelter here were welcome, as long as they notified me in advance. However, since the shrine has no phone, they would have had to climb the mountain. And there are many other spheres closer to hand. For people." He pointed down the mountainside to where, through the trees, sun could be seen reflecting off a pond. "Ginkakuji—the wondrous

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Six weeks of Science Fiction entertainment can now be yours for only 10^{50}

That's right. Now for only $10.50 you can receive delivered direct to your home or business all six books from our Science Fiction Sourceship. You'll receive one copy of God of Tarot by Piers Anthony, classic author of the bestsellers, Macroscope and Orn; Inheritors of Earth by Gordon Eklund and Poul Anderson; The Chain of Chance by Stanislaw Lem, author of The Investigation, The Futurological Congress, The Cyberiad and The Star Diaries; the third volume in Brian Lumley's Titus Crow trilogy, In the Moons of Borea; Cordwainer Smith's Space Lords, a book The *Washington Post* calls "compulsively readable" and Hugo award winner Ben Bova's The Starcrossed, a brilliant novel about the struggle for control of the interstellar media industry in a future world of technology marvels.

Plan your science fiction summer today. Simply fill out the coupon below, enclose a check or money order for $10.50 and wait for the Sourceship to deliver the six book bonanza to your door. Of course, if you prefer, please seek out these exciting new entries at your local bookstore or newsstand outlet.

Jove Publications, Inc.
Department KGT 10
757 Third Avenue
New York, New York 10017

I am enclosing a check or money order for the 6 books in your Science Fiction Sourceship for a total of $10.50 (includes postage). Please add applicable sales tax.

NAME_____

STREET_____

CITY_____

STATE_____ ZIP_____

I understand that delivery might be up to 60 days from receipt of order.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Silver Pavilion. They've been given ten spheres; were I distributing them, they would have received a thousand. You could see it more clearly if the device were not operating, but—" he brushed a hand through the air around them; though the sky was blue crystal, the light was as dim as when cirrus clouds flit between the sun and the Earth. "I will not pretend to understand this machine. Perhaps you could explain why it filters the light."

"It's a force field," said Fujio. "It springs into existence forty meters from its source a billion times a second, and then collapses immediately. You can't see it—it's never there long enough—but when it exists, it absorbs the sun's radiance, and thus its interior seems dark."

The old man's eyes worshipped Kyoto while his mind juggled numbers. "*I see now,*" *he said slowly,* "how this sphere could protect its inhabitants from bombs and from bullets—but what of lasers and poison gas?"

"The control mechanisms include a small computer which monitors the amount of energy being absorbed by the field—and of the pollutants passing through it—and should either significantly increase above normal, with normal defined for each specific unit, then the field ceases to collapse. When continuous, it is impermeable."

"Both ways."

"Yes."

"The inhabitants could suffocate."

"Eventually—if it were left on long enough. But the aliens advance at the rate of 12.91 meters per minute—they will be out of sight long before the oxygen is exhausted."

"And then?"

"And then we emerge, Father, and we . . . and we try to reclaim what we have lost."

"What will we lose from this beloved city?"

Fujio's face saddened. "Most of it," he whispered. "The parks—the gardens—a thousand lesser temples and shrines . . ."

"Come, meet my sphere-sharers."

"I thought you said—"

"I did, but these aren't." He jerked his head towards the rear of the building, then started walking. "I am not totally isolated," he said as they proceeded. "I heard the reports from Mars—that the aliens shattered everything, left nothing larger than a cubic *millimeter—and I began to think of* what such a sifting would do . . ." They turned the corner; there before them were hundreds of greenhouse flats, each filled with tender seedlings. There were aquariums, too, some swarming with insects, others with frogs and toads, still others with snakes and turtles and salamanders. "I know the zoos will protect larger wildlife," said Hideo. He tapped a glass wall and startled a gecko. "But who will care for the lesser ones?"

"You and those like you."

"But there are so few." He exhaled slowly, then began to return to the front. "The reports say that after the machines have passed, everything is smooth and graded."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"The reports are true."

"I prefer hillsides with character." Stopping, he looked up, as though he could see the Moon, and focus on the aliens that chewed its rocks into dust. A blue and grey pigeon swooped out of the forest—its wingtips touched beneath its belly—its eye was trained on its nest in the shrine's curved eaves. "And I worry about the birds. What will they—"

The pigeon hit the dusky shell of the force sphere and died before it could change course. Wingtips and tail feathers drifted down outside; a fine moist powder fell inside. The pigeon itself had vanished.

Sorrow deepened Hideo's eyes. "What happened?" he asked his son.

"It flew into the force sphere."

"Shouldn't it have bounced off?"

"No. Oh, it would have, if the field were continuous. Right now it's—"

"On and off a billion times a second."

"Yes."

"And the pigeon?"

"Assume it was flying at thirty kilometers an hour—" he unbuttoned the pocket of his uniform tunic and withdrew a wafer-thin calculator. Oblivious to his father's quiet amusement at his addiction, he punched buttons. "—that's 8.3 meters per second or 8.3 nanometers every billionth of a second. Its momentum carried it though the field 8.3 nanometers at a time—and the field sliced it into cross-sections just that thick. Like flying into a propeller."

"But why didn't the field come on continuously?" Hideo looked ill.

"The pigeon's kinetic energy was too low."

"I see. Wait here." He turned and disappeared into the shrine. A few minutes later, the sphere dissolved; the sunlight doubled in intensity. When he rejoined his son, his color was better, but he still walked uncertainly. "And yet this bird-slaying device will protect us from the aliens?"

"Yes." Fujio nodded several times. "It's been tested on Mars and the Moon. The alien machines cannot penetrate a continuous field. They sweep right past."

"With no harm to themselves?"

"What? Oh. You see, the alien machinery, as far as we can tell, is divided into two parts—the ship and the sieve. The sieve is actually another sort of force field, strung like a tennis net between two ships. It's the sieve that makes contact with the soil—the ships hover several hundred meters above ground."

"I see." The old man pondered that a moment. "So no ship has ever touched a force sphere. What would happen if one did, I wonder?"

"If it were moving, it would trigger a continuous field, and rebound."

"And if the field were not permitted to become continuous?"

"Well, then it would, ah . . ." He inhaled sharply, drawing air past his clenched teeth with a sibilant hiss. There was respect in his eyes when he stared at his father. "The ship would suffer the pigeon's fate." His face suddenly fell. "But no, the ships pass

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

over the fields—with hundreds of meters to spare."

"Then if the ship won't come to the sphere—"

"Obviously the sphere must go to the ship, I know." He scratched his jaw, and began to pace. He talked as he walked, half to himself, half to his father. "But the ships are well-defended; we lost dozens of buggies on Mars and the Moon because the drivers ventured within line-of-sight of them. The ships' lasers are incredibly powerful . . . we wouldn't be able to deliver the force spheres to them."

"Mount them on trucks—"

"Half the sphere would be below ground. Once the laser found it, the field would go continuous, and the truck would be glued in place."

"A plane?"

"Couldn't keep itself aloft inside a continuous field. The plane and the sphere generator would drop like stones."

"Drop? What if they were to drop directly on top of the alien ships?"

"If the field is continuous, nothing. It would simply sit there. If it's intermittent, however . . ." The pocket calculator again came into play. "Gravity would pull it through the ship ten nanometers at a time . . ." The excitement that had gathered on his face quickly dissipated. "But how could we possibly guide one to the top of a ship?"

"Perhaps a divine wind would help you."

"A divine wind?" Fujio was startled, but intrigued. "A kamikaze?"

"Precisely." The old man bowed, and started down the path. "There are dead leaves on the moss," he said over his shoulder, "and they must be removed." ■

analog *Dept. AC*
PO Box 1348, Grand Central Station,
New York, N.Y. 10017

1974: _____ sets 1975: _____ sets 1976: _____ sets
Please send me copies of the cover reprints as shown above,
@ $3.60 for each set of four.
I enclose check____, money order ____. (No cash or stamps.)

*Name*_____

Address _____

*City*_____ *State*_____ *Zip*_____

Please allow four weeks for delivery. Only a limited supply is available.
Offer good only in the United States and its possessions.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

KNOW THINE ENEMY!

SURVIVOR

OCTAVIA E. BUTLER

From an Earth ravaged by plague came the Missionaries, seeking a new home for humanity. Instead they were caught between two warring alien cultures, and only Alanna could see the enslaving lie the Garkohn "friend" offered—or how the Tehkohn "foe" could offer hope...

"A SENSITIVE STORY OF CONFLICTING LOYALTIES"
—*Newsday*

SIGNET SF/$1.75

NAL
TIMES MIRROR

New American Library
P. O. Box 999
Bergenfield, NJ 07621

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Caskie sprang it on me at the staff meeting and I was sore as hell. "We need a theater piece for the English issue," he said. "Alf, you do a Shakespeare interview."

"Damn it, Caskie, you promised I'd never have to do another star interview."

"This is special."

"There's nothing special about theater people. They're all alike. They all say the same thing. They're all idiots. They look at me earnestly and say, 'You know, I've read a lot of books and talked to a lot of people and done a lot of thinking and I've come to the conclusion that War. Is. Bad.' Please, Caskie, no."

"Shakespeare won't be like that."

"The hell he won't." I turned to the managing editor. "Arnold, haven't we got theater interviews in our inventory right now?"

"Cyrano," Arnold said.

"French," Caskie said.

"Bernard Shaw."

"Irish."

"Francis Bacon."

"A faggot." Caskie gave me his courteous stonewall smile. "Alf, take the think-tank and bring me thirty-five hundred words of Shakespeare. We'll run it in the front-of-the-book so no pictures."

So I took the think-tank (privately we call it the "fink-tank") with my fingers crossed because you never know where or when the goddam thing is going to land you. How it works is, you visualize the where and when that's your target and its goddam brain picks it up and meditates and then transports you.

It's okay on real latitude and longitude and real time but what can goof it is the fact that our planet is slowing down in its revolutions, which louses past time, and wobbles on its axis, which louses past latitude and longitude. Caskie sent me back for a Plato interview once and I landed in Turkey. I never did get that piece and accounting had the nerve to protest my expense account.

But this time, *mirabile dictu*, the idiot machine got everything right and I landed in London in A.D. 1592, approx. I was wearing a long night-

MS FOUND IN A

There are more things in heaven and earth, Alfredo, than are dreamt of in your technology.

ALFRED BESTER

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

COCONUT

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

gown over my jump suit so I didn't attract any particular attention; they dressed crazy in those days. I'd done my homework, of course—that's routine with the fink-tank—so my notes read as follows:

WM. SHAKESPEARE

Junior writer on the team of Greene, Marlowe, Peele & Shakespeare, which produced *The Contention of York and Lancaster.*
Collab. w. Marlowe on *Henry VI.*
Single credit:
The Comedy of Errors
Titus Andronicus
The Taming of the Shrew

That last was a smash hit for the Lord Chamberlain's Men until the plague closed all the theaters. That was all right with me. Not only do I hate the theater and its people but I also had plague shots.

So I got myself ferried from Blackfriars to Bankside where Jim Burbage, father of Richie Burbage, star of the Lord Chamberlain's Men, was building a new theater for the company, and started the Shakespeare interview.

He's a bright youngish man, just turned thirty, with prematurely thinning hair—he was backstage experimenting with wigs when I finally located him—an incipient beard and a strong Warwickshire accent which shows through his breezy theater patter and is rather disarming.

"I'm an actor first, last, and always, baby," he insisted. "Never forget that."

"Well, Master Shakespeare—"

"To hell with that, man. Call me Willy."

"Thank you, Willy. In that case why are you doing so much writing?"

"Because there aren't any grabby parts to play. Those Oxford and Cambridge longhairs don't know from theater; they don't know how to write for actors. They talk up a storm about 'closet drama,' you know, plays to read and fall asleep by, and we're left with egg on our face. After a while you get tired of arguing with them and write the parts for yourself."

"Could you give me a forinstance?"

"Sure. Take *The Contention.* You happen to catch it?"

"I'm afraid not."

"Cool it, baby, you didn't miss a thing. There wasn't an acting part in the whole goddam bomb. Greene was senior writer on the show and every time I said, 'Hey man, leave us give 'em some character and conflict,' he'd turn to Marlowe and ask Kip like was he going back to Cambridge for the reunion. The snot bit, dig? Putting me down because I'm not a 'varsity man.' "

"I know, Willy. I read his dirty crack about you in his *Groatsworth of Wit.*"

"Yeah, calling me an 'upstart crow.' Robbie was really shafting me. Anyway, I rewrote *The Contention* and turned it into Henry and gave the cast something they could get their teeth into."

"Didn't Marlowe collaborate?"

"Well, Kip blocked it with me and

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

wrote some scenes, but he was holed up in Deptford trying to duck the fuzz on that murder rap, and then the plague got him. I did at least fifty-nine percent of the writing. But I'm not trying to take anything away from Kip," he added hastily. "Dig?"

"I understand. What part did you write for yourself?"

"You remember that schtik in the first act where they raise a spirit in Glouster's garden?"

"Loved it."

"I was the spirit. Man, I played the arse off that spook."

Heminge & Condell Associates, who handle publicity for the company, claim that Shakespeare comes from the gentry of Stratford-upon-Avon where his father was an alderman. Their handout also alleges that Willy was the school star, voted Most-Likely-To-Succeed, and that only the hostility of one, Sir Thomas Lucy, whose daughter fell madly in love with the local hero, drove Shakespeare out of town.

Asked about this, Willy laughed and shook his head. "I haven't seen the releases but isn't that typical of a flak? I'll give it to you straight, but strictly off the record. Okay?"

"Off the record."

"My father was a dumb status-seeker and a rotten businessman who went bust. I got out of town because Lucy's goons nailed me ripping off the game on his estate and I had to get lost from the muscle. He didn't have any daughter, and anyway I've got a wife and three kids."

"Are they living in London with you?"

"No, they're still in Stratford. This is a great theater town but it's no place to raise kids. London's like a jungle."

"What sort of town is Stratford?"

"Never been there? You ought to see it some time. It's one of the prettiest towns in England . . ." He took a long beat. ". . . and I couldn't wait to get the hell out of there."

"On account of Lucy?"

"Not only on account of Lucy. Because it's strictly from Squaresville. I can't stand civilians."

"Civilians?"

"You know, people outside the business. It's drag-arse to be with types who don't know what a My-Wife-Is-So-Fat-That joke is. Come on, baby. I'll spring for a drink."

We went to the tavern which is the informal theater canteen and Shakespeare introduced a few of his colleagues; Ben Jonson, Tom Dekker and Tom Kyd, all much more celebrated than Willy but friendly and kind to the youngster nevertheless. They were seated around a center table noisily swapping jokes, capping quotes, and bitching their competition. As we settled into a private inglenook alongside the fire, Shakespeare murmured, "Don't get chummy with Kyd. He's a rat-fink."

"How do you mean?"

"He squealed on Kip Marlowe to the Privy Council; fingered him for an atheist. Kip was going to get busted for that too when he died."

"Marlowe didn't believe in God?

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Isn't that rather shocking these days?"

"Now don't *you* turn civilian on me." Shakespeare was exasperated. "Kip was a writer, wasn't he? He could believe or disbelieve any god-dam thing he wanted. That's our job."

"You're right, Willy. I apologize. Now let's get to the vital statistics. When did you come to London?"

"Well, I hacked around the sticks with touring companies for a couple of years and hit London in '87."

"And what'd you do?"

"The usual. Made the rounds trying to hustle a job and mostly getting hired as a gofer."

"What's a gofer?"

"You know, go for beer, go for props, go for anything they happen to need. I ran errands and understudied. I didn't really get a break until Bill Herbert took me into his stable. Bill had faith in me and I'll always be grateful. Matter of fact, I'm bringing out a sonnet collection—man, won't that bug the smart-arse varsity types—and I'm going to dedicate it to him."

"Excuse me, Willy. Who's Bill Herbert?"

Shakespeare looked at me incredulously. "Who's Bill Herbert, for God's sake! Where the hell are you from, civilian?"

"Well, if you must know, the 20th century."

"What!"

"You heard me."

"You're putting me on."

"No. Honest."

"Like four hundred years from now?"

"Just about."

"Jesus Mary and Joseph! What a wild scam. How'd you do it, baby?"

"We've got time machines."

"Like clocks?"

"Sort of. Power clocks."

"What's it like up there?"

"The same as here, only more so."

Shakespeare shook his head. "Not much story in that. And you're really a 20th century joker?"

"Really."

He made a face. "You're playing it all wrong, baby. Now if it was me I'd do the magician bit in heavy drag, dig? Leading man with a kind of fantastical name like Prospecto or Perfumery or Prospero. What's your name up there?"

"Bester. Alfred Bester."

"Pfui! No zing. No class. No sell. You ought to change it to something commercial like . . . like . . . Got it! Gonzago! How's that for box office? Might as well make yourself a duke-type. Alfredo, Duke of Gonzago. It sings. A name like that they'll root for. Say, do they remember me up there? Do they still read my notices?"

"They read and write everything they can about you."

"I knew it, duke bubie, I knew it. When an actor finally finds the right line they never forget him."

"Don't you want to know what's going to happen to you?"

"Christ no, duke! That would kill the suspense. Bad theater. Bill Herb-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

ert says I'm going to be a star leading man, and that's enough for me."

"Which brings up the same question. Who's Bill Herbert?"

"My gent. Haven't you ever heard of the Earl of Pembroke up there in the twentieth?"

"Oh, *that* William Herbert."

"Who else? He runs the Pembroke Agency. They handle Ben Jonson, he's that big guy at the table you just met, there's Phil Massinger, Johnny Donne, Georgie Chapman, Dick Burbage and Ingo Jones."

"Would that be Inigo Jones, the stage designer?"

"Yeah. We call him Ingo."

"Was it associating with other authors that started you writing?"

"Well, yes and no. I've got to admit I always did have a hankering, but who hasn't?" Shakespeare grinned a trifle sheepishly, searched in his clothes and pulled out a roll of manuscript. "Here's something I found in the trunk last night. It's a play I started when I was a kid back in Stratford. Go ahead and have a look. It's a camp. Strictly for laughs."

PERICLES
PRINCE OF DENMARK

Wm. Shakespeare
ACT I, SCENE 1

A ship at sea; afterwards an island.

Hautboys and torches. Enter PERICLES, CAPULET, HORATIO, SOOTHSAYER and CLOWN.

CLOWN

To sing a song that old was sung,
From ashes to ancient Belch has come,
Assuming man's infirmities,
To glad your ear and please your eyes—
A tempestuous noise of thunder and lightning heard.

PERICLES

Enough; no more.
'Tis not so sweet as it was before.
My duty to you both, on equal love,
Noble kinsmen of Denmark.
In peace there's nothing so becomes a man
As modest stillness and humility;
But when the blast of war blows in our ears,
Then initiate the action of the tiger.

CAPULET

If we should fail?

The question is not whether there is
intelligent life
in space but: is there intelligent life down here on earth?

MAX LERNER

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

PERICLES

We fail;
But screw your courage to the sticking-place
And we'll not fail.

SOOTHSAYER

There's a double-meaning in that.

HORATIO

I wonder that you will still be soothing,
Signior Soothsayer; nobody marks you.

I handed the manuscript back to Shakespeare. He smiled. "Funn-ee? Funn-ee? But you know, there're one or two lines in it that aren't half bad for a kid."

"What are you working on now?"

"Actingwise?"

"Writingwise."

"Oh that. Well . . ." He looked at me earnestly. "You know, duke, I've done a lot of reading and talked to a lot of people and done a lot of thinking and I've come to the conclusion that War. Is. Bad."

"Now I call that profound, Willy."

"It wasn't easy getting there. I'm going to do an antiwar play some day."

"That's the future. What about right now?"

"Well, right now I'm doing a rewrite on a play I put together a while back. That's something you ought to explain to civilians, duke. A good show isn't written, it's *re*written. This play. Originally it was *The Fantastical Spaniard*, but we've been milking the spik schtik to death lately so I'm going to call it *Love's Labour's Lost*. Think it'll draw?"

"If they can pronounce the title."

"Yeah, it's a tongue-twister alright." He reflected. "Man, could I play the arse off the lead. Like wow!"

"And after the tongue-twister?"

"I've been reading Brooke's poem, *Romeus and Juliet*. There's a swingin' Ginzo feud in it and a lovely meet-cute, but Brooke's a 'varsity longhair' so he blew it, of course. I may take a crack at it."

"Wouldn't that be stealing?"

"Baby, if they don't know what to do with their stories, I do. Could I ever play the arse off that Romeus!"

"Anything else?"

"You heard about Roderigo Lopez, that Hebe poisoner that got himself the big one last June?"

"As a matter of fact I interviewed him for our Israeli issue a week before the execution."

"You did! What was he like? Did he—No, don't tell me anything. I've got my own picture. Like I was thinking if I could combine him with a tired play called *The Jew* that I caught back in the seventies I might come up with solid box office. I'm just spinning off, you understand."

"Sure. I understand."

"Man, could I play the arse off that Hebe. Proud, rotten, loose in the head toward the end, but always with class, dig? Let's see. What else? I've got a few notes on me somewhere." Shakespeare did some more searching and at last produced a small mass of paper heavily blackened with minute scribblings.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

BIOLOG

Paul J. Nahin

The first story written by Paul Joel Nahin drew a rejection letter in 1964 from Analog *editor John Campbell nearly as long as the story. Countless subsequent rejections from every possible magazine led Paul to lay off fiction writing for 12 years, until he ran into a personal experience over an attempted security classification of a technical paper. Thus was born "Publish and Perish" in the April, 1978 issue.*

Paul's background is similar in nature to that of many of Analog*'s long-time readers and part-time writers: B.S. (Stanford), M.S. (Caltech), and Ph.D. (UC/Irvine) in electrical engineering, assistant professor of electrical and computer engineering at the University of New Hampshire at Durham, and a computer weapons consultant to the U.S. Air Force. Preceding this there were teaching jobs at Harvey Mudd College in Claremont, California and George Washington University in Washington, D.C., along with positions as weapons system designer for Hughes Aircraft, Beckman Instruments, General Dynamics, Naval Research Laboratory, and others.*

By the time professional technical writing, such as "An Error Analysis of an Iterative Procedure for Evaluating Marcum's Q-Function," is added to recent sales of four stories and two articles to Analog, *along with stories to other science fiction magazines, Paul seems to be heading towards full-time writing.*

"The Laser BMD" article reprinted in the October, 1977 Analog *received both a 1978 M. Barry Carlton Honorable Mention by the IEEE and the 1979 IEEE Harry Rowe Mimno Award for the best speculative paper in aerospace and electronic systems.*

Strangely enough, he may be the world's only science fiction writer who does not know how to type. All manuscripts are prepared by word-processor program on a giant computer.

Born in Berkely and raised around Los Angeles, Paul now lives in 350-year-old Dover, New Hampshire. He is hopelessly devoted to puns and enjoys humorous incongruities. But for a last-minute change of heart on his part, Analog *readers might be reading his stories under the pseudonym of B. Crayton Mudge. Fortunately for the literary scene, this name was merely tacked onto a character, who was then killed off by the author.*

by Jay Kay Klein

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Let's see. Let's see. Leave. Us. See. Oh, here's something. Borrow Frank's copy of *King Leir*. Who the hell is King Leir? Must have been smashed when I wrote that. Change Sir J. Oldcastle to Sir J. Falstaff. Uh-huh. Much grabbier name. Do a revenge-type story. Son of a murdered father. Maybe. I don't know. Here's one I can't even read, duke. Can you make any sense out of it?"

He held the page up and pointed.

To me it looked like *Gerald's Cincture*, which didn't seem to make much sense.

"No, that's close enough," Shakespeare said. "I remember now. It's Geraldi Cinthic. That wop wrote a great story about this jungle-bunny Moor who marries a blonde. What a situation, huh? Out of sight! Man, could I ever play the arse off that Moor."

The party at the center table had been getting drunker and noisier. Now a pewter mug sailed across the tavern and banged against the wall just above Shakespeare's head. Willy grabbed a bowl of deep-fried lampreys and returned the compliment to Ben Jonson. Most of the lampreys splattered all over me.

As the battle of wits continued, I edged past the action and started out of the tavern. I had Caskie's thirty-five hundred words. Shakespeare was now annointing Kyd's head with a carafe of Canary while Dekker decorated his ears with savaloy sausages.

"No dignity," Jonson was declaiming. "None of you goddam artistes have any goddam dignity."

"Don't forget, baby," Shakespeare yelled to me. "Tell 'em I'm an actor first, last, and always. I can play the arse off anything."

Damn if the goddam idiot fink-tank didn't louse my recall and I found myself swimming in salt water. Lovely. Charming. I must have been treading water for hours until a raft with a sail and paddles hove into view. I waved and hollered and the raft picked me up. It looked strangely familiar. Suddenly I did the take. "Christ!" I choked. "It not only goofed latitude and longitude but time as well. You're the *Kon-Tiki* crowd, aren't you?"

They stared.

"Hey Thor guy, you tollerday donsk?"

"N."

"You talkatiff scowegian?"

"Nn."

"You spigotty anglease?"

"Nnn."

"You phonio saxo?"

"Nnnn."

"Holy Saints! It's the original Peruvian crowd headed for the South Pacific a thousand years ago. Thor Heyerdahl was right, not that he'll ever know."

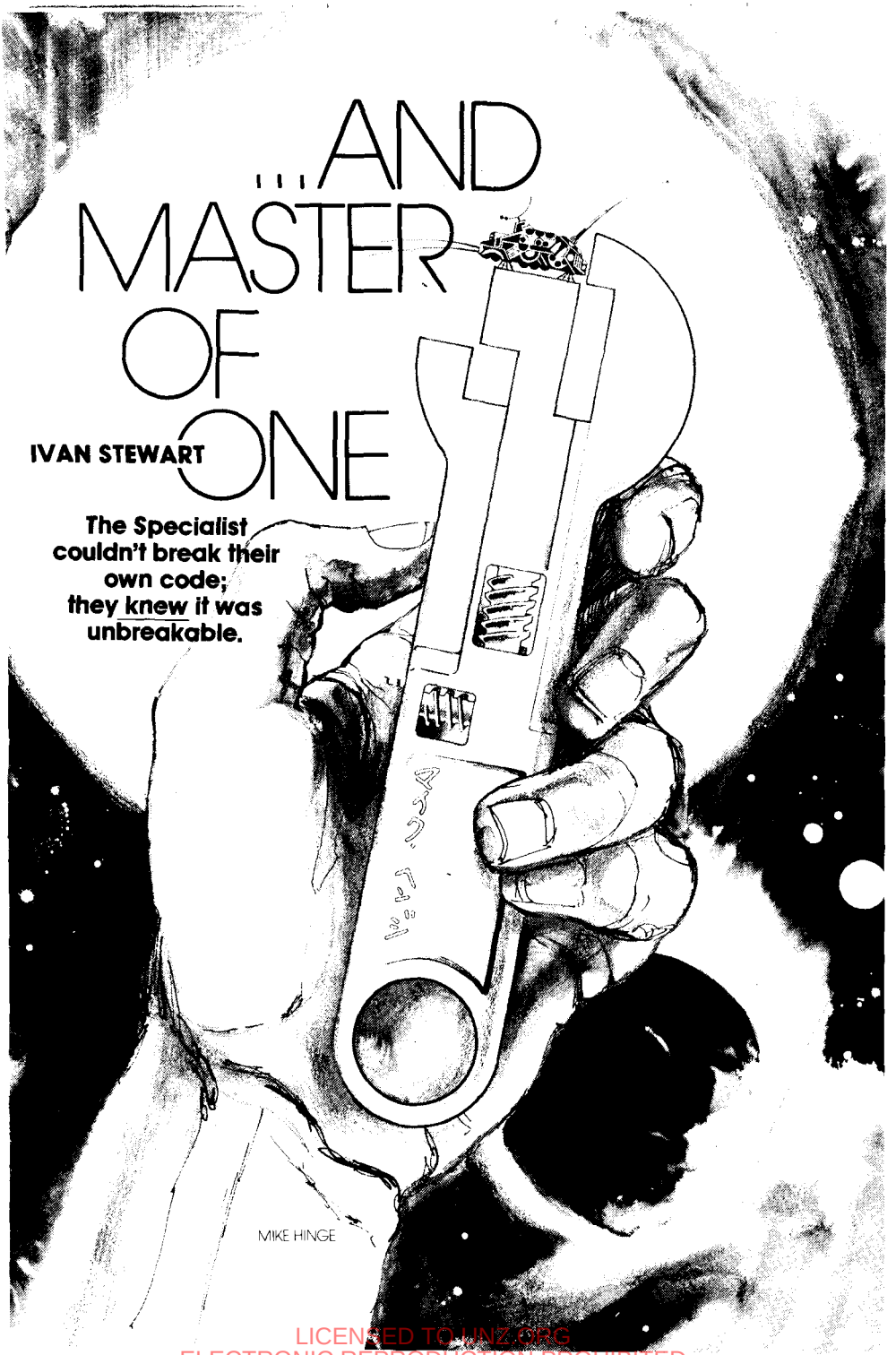
But this island is very nice. The Peruvians call it something in their lingo that sounds like Samoa, which adds up. I think Willy Shakespeare would approve of the name. Solid box office. He would also dig the women. Every time I lift mine eyes from this manuscript I see brave vibrations, each way free. ■

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

...AND MASTER OF ONE

IVAN STEWART

The Specialist couldn't break their own code; they knew it was unbreakable.



MIKE HINGE

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Lucre was never more filthy than on Grover's World, where mud and money were synonymous. And Grover's World had more mud than sense: it wallowed in mud with the joyous abandon of a hippopotamus in heat. Within its beslimed biosphere flourished a unicellular ecology whose concentration of organic macromolecules represented a vast, self-renewing source of chemical feedstock. Ten years ago it had been an uninhabited mudball; far enough off the main starlanes to discourage official settlement, too near for more exotic tastes. Now it was an industrial boom world. Complexes of rafts, tethered in tension-webs, sprawled in loose-knit groups along its equatorial belt. Mobile extractors prowled its surface, filtering the mud for organics the way a whale strains the seas for krill. (According to the more literary inhabitants their colloquial name, *mobies,* derived from this analogy rather than the obvious acronym.)

Boom worlds, in the haste of exploitation, tend to sidestep certain niceties of more bureaucratic regions. It is, for example, possible to obtain work without possessing various paper qualifications or permits normally demanded of its citizens by the Quaternity; or without being a member of one of the specialist Guilds. In consequence, boom worlds attract a less than conformist breed; and such people, especially in concentration, engender a less than orthodox variety of problems. Fortunately, though, a stringent workload keeps these individualists in check most of the time.

But not always.

As a case in point, consider the plight of Wyllam Jarneyvore: a joat by trade, cheerful by nature, and apprehensive by virtue of having been caught—or so it seemed—tampering with the freewave communication network. He sat in the rear compartment of a four-man tove, as it skimmed between the rafts and among the cables that tethered them. Like much of Grover's World, the tove was mostly brown in colour, liberally streaked with green. However, here and there it was possible to detect patches of a metallic blue.

The uniform of the constable sitting beside him was the identical shade.

Two days previously, Jarneyvore had been eating his breakfast on a balcony above the boardwalks of Raft 5077, observing the shifting domain structure of pockmarks etched by the rain on the murk below. Still not fully awake, he had opened the morning mail. The first envelope brought forth a credit-note, of satisfactory but not generous dimensions, in recompense for assistance in troubleshooting a hormone imbalance in the cyborg controller of one of the mobies. The second revealed a tax waiver on that item from the Interstellar Revenue Service in recognition of his absence from Sector of Domicile for a period of not less than twenty-two days . . . but what was this? A tax *demand,* for the very same transaction?

An explanation, all too plausible, was not long in forthcoming. Grover's

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

World, not the most developed in the galaxy, would have routed the information to the sectorate on Aphélix. Even though freewave was essentially instantaneous, the relay to Icebox was not. The tax demand was routine; the waiver was not and therefore had not yet been processed. A retraction would certainly follow, after some confusion, the IRS being notoriously inept at tracing leapfrogged communications.

It would be a nuisance.

Jarneyvore detested "authority" in all its manifestations, though like all good citizens he had learned to accept with grudging grace the tangled red tape of the Quaternity. It was better than a four-sided war.

Though that would at least have been exciting.

What made it worse was that the IRS was a human institution, and most of its staff were still drawn from human ranks. From one's own race one was entitled to a little empathy—or so it seemed to Jarneyvore's still muzzy brain at that early hour, history being overwhelmingly against such a view. Why couldn't *they* feel frustrated for once? Why couldn't . . .

Perhaps it could be arranged?

He hastily put the thought out of his mind.

It resurfaced later that day as he was engaged in reconstruction work at the Food and Freight Terminal. This time he seriously considered the technical problems: they were considerable, but not insoluble.

An evening with Mary Carey, who worked for the telephone company (she claimed she only went out with him because he was the only person not to remark that her name rhymed, when first introduced) submerged these thoughts again. Until the perfect method bubbled up, unheralded, from his subconscious. At approximately one o'clock in the morning he spent some twenty minutes in a public booth punching digits.

The result, thirty-four hours later, disrupted IRS communications from Hickory Gulch to the Greater Magellanic Cloud.

Lobačevski Sector is noted throughout the galaxy for Sharraby Breach, a dust-filled slash of spatiotemporal disruption roughly a light-century in length. According to one theory it is the relic of a wandering repulsar, which ricochetted through the area at translight speed during the early unfolding of the universe from the primal singularity, accompanied by a gravitic shockwave which created a permanent phase dislocation of the continuum. This theory is disputed by some on the grounds that no repulsar has ever been observed; whilst its protagonists hold this fact unsurprising, all repulsars having disappeared from the universe some sixty billion years ago. An early resolution of the dispute is not anticipated.

On Quaternity spacecharts Sharraby Breach is annotated with the black zigzag that signifies unpredictable danger.

Detectors had revealed unusual ac-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

tivity, of an unknown nature, within the Breach. The pryship *Pontrjagin*, a SpaDe research vessel, floated on the fringe of Sharraby Breach like a snowflake at the edge of a crevasse. Like all spacegoing vessels, it was equipped with phasehopper gear. Total elapsed time for a single trip was of the order of a few nanoseconds.

More even than phasemesh failure, which can strand a ship in a region of space bearing no apparent relation to its destination, spacegoers fear *escalade*. This designates a rare phenomenon in which phase resonance builds up beyond the dissipative capabilities of the mechanism. When this happens, as the *Astronaut's Almanac* puts it, "expansive forces increase exponentially until they exceed by several orders of magnitude the design tolerances of the structural material." More briefly, the vessel explodes.

Pontrjagin was exhibiting symptoms of escalade. Its phasic halo, normally a frigid blue, was yellow streaked with orange and red. In the few seconds before it shattered into a formless cloud of ionized particles, *Pontrjagin* transmitted a freewave message; a profiled waveform squirted along a tight phase beam to Quaternity Central, resolving itself en route into a sequence of coded soliton pulses.

Jarneyvore traced the tove's progress on a map of the city that he kept in his head. It disturbed him more than he cared to admit when he recognized their destination as the Space Department. For according to the Doctrine of Disconnected Powers, SpaDe had no right to be involved in IRS affairs.

He recognized the SpaDe official at once: Joze Palgandra, local Defence Secretary and a Grynth to boot. *Defence?* Perhaps it wasn't the IRS business after all.

Palgandra looked up sharply from his desk. "You're Wyllam Jarneyvore." It was not a question and it elicited no reply. "Otherwise known as Billy the joat?"

"Yes."

"We live in interesting times, Mr. Jarneyvore. My Specialists seem to agree on only one thing: they desperately require the services of a joat." Billy relaxed imperceptibly. "I take it a joat is a sort of polymath?"

"Jack-of-all-trades. A dilettante in depth. Not a Specialist, but more than a broad Generalist. Without the Specialists I'd know nothing. Without me, they find it hard to talk to each other. So usually they don't."

Palgandra shuffled papers. "You keep strange company."

"To be a good joat you need sources of information."

"The records also say you have made important contributions to Quaternity security and research. And that you possess an incurable urge to tinker with mechanisms in ways embarrassing to those in authority. My psychologists tell me that this is a characteristic of successful joats, a price we must pay if we desire their services." Palgandra looked skeptical.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"There's a lot of pressure towards specialization," said Billy. "To resist that you have to be naturally unorthodox; to think across conventional paths. That breeds a distrust of established authority."

"Such as," said Palgandra, apparently unconvinced, "reprogramming a police tove to perform circles around the Eros Raft?" Billy did not visibly react. Palgandra looked directly at him. "Someone with a similar attitude to authority saw fit to tamper with the IRS freewave network."

Billy decided that his relaxation had been a bit premature. He then asked "How?"

"He gained access to the Bell subdirectory here, and consequently to the main Directory on Aphélix. That requires three classified commercial codes. One to tap their maintenance channel, one to link to directory update, and one to unlock the software protection system. Using Bell's private language he then entered a self-erasing parasite which switched the numbers of IRS branches whenever a call was made between them. The subdirectory feeds in batches to the main one, with a delay of about twenty hours, and nothing happened until this morning. When the effect became noticeable, but before it was clear what it was, the Comptroller followed standard procedure and put out an all-branch alert." *I rather expected that, thought Billy.* "Since the alert is routed by freewave through the telephone system, the effect was to randomize all twenty-four million branch numbers." Palgandra paused and Billy seized the opportunity.

"Mr. Secretary, I don't see why you need me. The IRS must have records of the original numbers; if not I'm sure Bell does. It would only take a day or so to correct the problem. But what really intrigues me is what SpaDe is doing, involved in a purely IRS affair."

"It isn't a purely IRS affair. The Directory is their problem. Ours is more serious.

"We lost a pryship out near the Breach."

Chief Cryptologist Harllan was human—in the sense of species—and he took up the explanation. "I assume you are acquainted with trapcodes?"

The joat looked thoughtful. All commercial concerns used trapcodes, and it wouldn't do to appear too knowledgeable on what could be a sensitive matter. "Not in detail. As I recall, the word designates a theoretically unbreakable code. Its encoding algorithm can be made public without compromising the decoding algorithm. It's the customary technique, industrially and militarily, for transmitting classified information."

Harllan nodded. "Yes. The method uses three large primes and . . ."

The joat interrupted. He knew a great deal about trapcodes, though he had no wish to reveal this; but he had no wish to sit through a description of them again, and it seemed time he asserted himself. "Mr. Harllan, I really don't think that now is the time to

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

go into fine detail." Momentarily Harllan looked offended, but he was intelligent enough to take the point. Billy turned to Palgandra. "What happened to a trapcode?"

"We use one for SpaDe reports. Yesterday evening the computer stopped decoding. The primes were erased. It forgot the decoding algorithm."

"Change the code. Change the computer."

Palgandra shook his head. "The code is changed automatically every twenty-four hours. The computer is in full working order. We have lost exactly one day's reports. Unluckily, they happen to include the one from *Pontrjagin.*"

Billy frowned. "How did the computer get wiped?"

"The decoder," said Harllan, "was concealed in the BGD on Aphélix."

"That's the Bell-Galactic Directory," put in Palgandra.

I know, thought Billy, and it worries me.

"It was in a protected segment of the core," added Harllan.

The joat became considerably more worried, though nothing showed in his expression. He enquired softly, *"How* protected?"

"ERS."

Yes, thought Billy, that would explain a lot. And I'm in trouble. Joat, generalize thyself! But he said merely, "I've heard of better methods."

"It's a standard technique in cryptology," said Harllan. "Until now we hadn't realized it was unsatisfactory."

Billy leaned back in his chair. "I can tell you at least three good arguments against it, and so could any competent programmer. The main one is that you can't auto-protect ERS on a concealed program unless you use an irregular tag. If someone feeds in a self-erasing parasite it may be *attracted* to the tag. That preempts the rewrite instruction, and the scrambler gets engulfed. What should happen is that the parasite is engulfed, the decode algorithm is rewritten, and the parity echo is scrambled to delete any memory of the protected segment. But without the rewrite, you lose whatever was in the space the parasite took over."

"Until yesterday," said Harllan, "I had never heard of a self-erasing parasite." Billy said nothing. Palgandra broke the silence.

"Jarneyvore, that IRS parasite looks remarkably like your own handwriting."

"How can you tell, if it has erased itself? Even its existence can only be inferred indirectly via the effects produced."

"That is *exactly* the part that looks like your handwriting. Anyone knowing enough to do it at all would have enough sense and enough knowledge to cover his tracks. The information required is disparate enough that the only likely candidate is a joat."

"Or a disgruntled Bell employee. Or a disgruntled SpaDe operative. With freewave, almost anyone in the galaxy with access to the right information."

Palgandra held his ground. "We

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

know that the parasite was entered here on Grover's World."

I wondered if they could do that, thought Billy. Now I know.

"But not only are you the sole person on planet with the knowledge to do it *and* the personality profile to put that knowledge into practice," continued Palgandra, "you're also the only person on planet with any chance of putting it right."

"Naturally. So impressive is the record of Wyllam Jarneyvore, joat extraordinary, that restoring vanished numbers from a computer, or breaking a trapcode, will be scarcely enough of a problem to trouble the great mind." He got to his feet. "Why me? You could phasehop every joat in the Quaternity over here within the hour!"

"First, there is a proverb about too many cooks. Second, your record *is* impressive. Third, we do have several other joats working on the problem. But most of all, *you* have much better motivation."

"Motivation?"

"Look, Jarneyvore, *we* know you're responsible for this; *you* know you're responsible for this. As a citizen of the Quaternity you are enlisted in the Defence Reserve, and I could easily put pressure on you. We may have to send out another pryship; I can see to it that you are on it." Palgandra leaned both elbows on the desk. There was a long silence before he continued, "But I'm not going to. You tell me why."

"You know my personality profile. You know that I will not produce good ideas under a threat. You know that I wouldn't cooperate, that I'd fight you in the courts, and you can't afford the time."

"That's part of it," said Palgandra. "But not all."

"Keep talking."

"Also according to your personality profile, beneath that slightly brash exterior lurks an altruist. By accident, your little scheme has blown up into something serious. You may not admit responsibility, but you *feel* it. You would like to help, to undo what you have done. Am I right?"

The joat shrugged. "You know I can't comment on that without laying myself open to my reply being construed as tacit admission of responsibility."

"Of course. But that is not necessary. Joatry is, I gather, a freelance profession. I imagine you have no objection to undertaking a SpaDe commission—subject of course to our negotiating a mutually acceptable and suitable fee?"

"What do you deem suitable?"

"Double your usual rate."

"Now that, Mr. Palgandra, is a generous offer. I could hardly *refuse* you without tacitly admitting responsibility."

"No, you couldn't," said Palgandra softly.

"Naturally I accept. The Quaternity can afford it. Though performing for money hardly amounts to altruism."

Palgandra shook his head. "On the contrary, it is often the purest kind."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

The problem, as Palgandra explained it, was exacerbated by politics, and went well beyond the mysterious loss of one pryship. The Quaternity was at best a loose-knit federation of races, and each looked after its own ends. The Femm were suspicious of human-Grynth cooperation in exploring the Breach; while the Barasshan were by nature suspicious of everything, including other Barasshan, and thought Femm distrust was actually camouflage for covert activities within the Breach. Humans and Grynth were worried that *Pontrjgin*'s disappearance had been engineered by Femm or Barasshan, and hoped fervently that it was not. Privately each wondered about the other, but as Founding Fathers of the Quaternity (of Duality as it then was) they understood each other most of the time. Feelings were running high, and the Femm had accused humans and Grynth alike of deliberately concealing the reasons for *Pontrjagin*'s loss, to cast suspicion on *them.*

This at least was the surface; and however inaccurately waves on an ocean reflect the true turmoil beneath, they are an unmistakable sign that turmoil does indeed exist.

The first step was routine—the only one that was. Jarneyvore set the wheels in motion to convene a cabal—a gathering of Specialists whose total competence would encompass all fields likely to be relevant to the problem. Add one joat and stir, and you have a group of people who can talk to one another and whose pooled resources have a chance of finding a solution—if there is one.

Grover's World is unusual in one respect other than its mud. It is the innermost planet of the red giant Willington 708 kappa, known locally as "Basketball," and having a diameter of some sixty million miles. The planet orbits only five million miles above its surface. So cool is the star that the planet maintains a pleasant temperature range despite its proximity; and the great orange globe is a spectacular sight in the daytime sky. Though the radiation is low, the gravitation is not; and Grover's World is too far into the gravity well to permit freewave broadcasting. All interstellar communication must be relayed through the freewave transmitter on Basketball XVII, a further sixteen billion miles out. Little wonder that Basketball XVII is also known as Icebox.

There are few inhabited planets in the Quaternity that have such a gravitational profile; and the sublight relay employs technology that, elsewhere, is largely obsolete.

Because of Grover's World's lack of equipment, and slow communication, the most convenient location for the cabal was Aphélix. While his 'hopper was calibrating its grids, Jarneyvore initiated two long shots: a core search to see whether the decoder still existed somewhere in the BGD memory; and a routine codebreaking sequence whose chance of success was, to say the least, remote. Both of these were recorded for immediate transmission

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

on demeshing prior to planetfall.

The furniture was comfortable and casual. There was a bank of terminals, hooked into the main SpaDe reticule by freewave link. Jarneyvore had also insisted on a blackboard and chalk, and a plentiful supply of coffee, universally acceptable except by Femm, for whom a species of groundnut performed a similar function.

The SpaDe cryptologist Harllan was there, though grudgingly. He had objected to Jarneyvore's qualifications; until it was pointed out that while there were some twenty-seven thousand cryptologists in the sector, there were only three joats. Also present was Maralyn Chanopy, computer specialist. A trio of Grynths, forming a statistics team, conferred in one corner at the threshold of hearing. Pazh ap-Rozby, a Barasshan electronics expert, was riffling through a pile of logistack profiles with a skeptical look on his alien features. But then, Barasshan always looked skeptical. Except when they looked actively suspicious. Mizzlizllyn Dirijjee, a Master Mathematician and a Femm, balanced a bowl of *kaata* nuts on one leg-joint.

Harllan had explained the intricacies of trapcodes. The process was simple, elegant, and effective. It was based on the fact that, while a large number may be proved prime with great facility, it is a painfully slow procedure to factorize a similarly large number that is not prime. The encoding algorithm required knowing only the product of three particular seventy-digit primes. But to decode required the primes themselves, known only to the computer. And to obtain them by factorizing the product would take, on average, some forty trillion years.

Maralyn wanted to know how foolproof that estimate was. Mizzlizllyn opened one eye, muttered "completely," and closed it again. No one queried this.

"I would like to know more about the encoding program," ap-Rozby put in. He scratched his carapace gently with one hoof. "Since the computer has forgotten the three primes, and manifestly no one else knows them, I assume that only the computer had access to that knowledge. How was that done?"

This was Maralyn Chanopy's territory. "I can answer that one, Pazh—though I doubt it will help."

The joat looked sharply at her. "Why not?"

"Well, Billy. . . that program was designed to be foolproof. It makes use of a rumdog to . . ."

"A *what*?"

She flushed. "Silly Specialist jargon. A random number generator. We use that in a preencoding computation. It produces the primes, at random."

"Any chance of getting at this—er. . . rumdog?"

"Oh, yes. It's a standard software package."

The joat's ears pricked up. "Isn't that dangerous?"

She looked at him blankly. He

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

expanded, "I mean, if the rumdog is available on the open market. . ."

"Oh. I see. No, that wouldn't make any difference. The important thing is to get the best one available. It doesn't help to know how it works. Random is random, you know."

"Are you a statistician, Maralyn?"

The question came, not from the trio of Grynths, but from Pazh ap-Rozby. It startled both Maralyn Chanopy and Wyllam Jarneyvore.

"I'm a programmer, Pazh."

"But you've heard of Rozby ap-Fordd?"

"The Nobel winner in statistics! Yes. Rozby? Relative of yours?"

"He was my herdfather. When I was a young boy I was playing *krapph*—a game of chance—and I said something about how structureless chance was. I still remember his reply."

"What was it?"

Ap-Rozby smiled—a rare feat for Barasshan. "He told me 'there is no such thing as "random." Even the disorder in the universe is structured. Randomness is merely evidence of a pattern that has escaped the Barasshanti mind.' "

One of the Grynths spoke. "I studied Rozby. He also said, 'there are no patterns in the universe beyond those we impose on it.' "

"Did he? I suppose he must have been talking about something else. I just thought I should raise the possibility: Rozby seemed to think it was important."

"I think Pazh has a point, Jimi." This time the speaker was another of the Grynths: Hari Jaxxon. (Human names were in vogue among the Grynths.) "Especially in this context. The last way to generate random numbers is to write a random program. All they ever do is hit loops."

Billy nodded. "So how *do* you generate random numbers?"

Jaxxon told him.

In generating random numbers it is necessary to be certain that they really are random. To do this requires detailed knowledge of how they arise—an apparent paradox.

Its resolution is to be found in the behaviour of insect populations. Under suitable, carefully controlled conditions, these can fluctuate violently and without pattern. It was found, not without surprise, that such fluctuations could occur even with deterministic breeding rules, owing to effects that the entoecologists dubbed "chaos." The mathematicians, less desperately, called them "strange attractors" and attacked them using symbolic dynamics and ergodic theory. At this level they are analogous to turbulence in the population drift. The analysis, despite its sophistication, leads to algorithms for generating provably random numbers by deterministic processes, which can be implemented on even the smallest microprocessor without difficulty.

Billy digested this. "Can we duplicate the computation used for the decoder?"

"That's not the point!" said Maralyn excitedly. "We already know the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

listing for the program. I *told* you; it's standard."

"Chaos?"

"Yes, it does use that technique."

"Well," said Billy, "I think it is important, Maralyn. If the standard program had been nondeterministic, we would have been in real difficulty. Run one of those twice, and the second time it does something quite different from the first. At least with a deterministic program you get repeatable results."

Maralyn came close to stamping a foot. "Who ever heard of a nondeterministic program?"

"I could easily make you some nondeterministic hardware," and ap-Rozby. "What would a program for that look like?"

This time Jaxxon stepped in to defend Maralyn. "I think the pair of you have missed an important point. You can't just duplicate a rumdog computation by running the program again. Can you, Maralyn?"

"Damn right, Hari! You have to know where to start."

"Explain that in more detail, please, Maralyn," said the joat.

"Look. You take any fixed program and run it on a machine. Now run it again. What happens?"

"The same thing."

"Exactly. Will a random number generator be any use if it repeats the same list of numbers every time you start it up?"

"I guess not."

"So what you do is incorporate into the program a starting-point that changes from one occasion to the next. Like the date. Or the time. Or the longitude of Sirius."

"So to reconstruct the decoder," said Billy, "all we need to know is the date when it was run?"

Jaxxon grinned, but shook his head. "Not so easy. That's a little too obvious," he said.

"What *do* we need to know?"

He sighed. "Billy, old joat: that decoder was meant to be unbeatable. We had to use something that could never be guessed, or even if it was, be reconstructed."

The joat leaned back, raised his hands. "So what did you use?"

"Tell him, Maralyn."

"The entire contents of the telephone subdirectory on Grover's World."

Jarneyvore reported in person to SpaDe headquarters on Aphélix. His initial puzzlement that such an important operation had been left to such a minor official as Palgandra had evaporated; it being now clear that he was of a higher rank in the Grynth hierarchy than his ostensible position as Defence Secretary on a boondock world might indicate. It had been replaced by a feeling that humans and Grynth were up to something in the Breach that was more than a little cloak-and-dagger. The joat placed his hopes on the cloak and resolved to keep on the look-out for the dagger.

Whether this belief was correct was uncertain; but they did send him back to Grover's World to report to Palgan-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

dra in person. It might have been just bureaucratic channels, or internal politics. Whatever the explanation the joat was happy to return to home ground, though he was less happy when he saw Palgandra's expression.

"I could reconstruct the decoding algorithm if I could find the missing primes," said Billy. "In fact I can get away with less, by rerunning the random number generator and letting the *computer* find the primes. We know the program. But first we have to initialize it, and *that* requires knowing what was in the subdirectory, here, three days ago."

"And that . . ."

". . . is impossible. They keep no records of past listings. Oh, I suppose there is some minuscule probability that a galaxy-wide search could turn up a list, but the chances of an error, or missing something out, are ridiculous. I see no way to get that information."

"Bell Central?"

"No. The local subdirectory transmits an update. In fact, that is what the code uses. But we're three days too late. And the central directory doesn't record outdated listings either.

"So in short, Mr. Jarneyvore . . ."

". . . it's a bugger."

"Quite."

Instead of brooding, Billy grasped his opportunity and went on the town with Mary Carey. Midnight found them both seated at the perimeter of the R&R raft, adrift on Windy Mire, and served by chauffeured toves from the nearby shore.

". . . but Billy, there must be something you can do."

"That really doesn't follow, Mary. We got a lot closer that we had any right to as it is. The code is unbeatable without a key that was wiped three days ago. Short of time-travel there's no way."

"It's rotten luck."

The joat smiled wryly. "With *my* personality profile it's not. It's inevitable. Civilization—to use a polite phrase—moves on nice, smoothly oiled wheels. Or so it likes to think. My function is throwing a spanner in the works."

"Maybe. But it's hardly your fault that the IRS sent you that tax demand when they shouldn't have. And that's what started it all."

"They don't see it that way."

She downed a quarter inch of Martini. "Well, if they hadn't been so penny-pinching about freewave equipment . . ."

"No, Mary, they can't *use* freewave this close to Basketball, because of the gravity-well. They have to use a relay, and that takes about twenty hours to reach Icebox, where the freewave station is. It's not their fault."

"Oh, that's right. I know a girl in the radio-room where they handle that sort of thing.

"But it's *still* rotten luck!"

"Mary Carey, quite con . . . oops, sorry love. I know you're sensitive about that. You won't give up, will you?"

Mary worried the problem like a

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

dog worries a bone.

"How can you be so certain it's impossible!"

"I'm not, completely. But Mizlizzllyn insists that the estimates for factorization time are foolproof, so sneaking in the back door is the only chance."

"You'll find a way. Don't be discouraged." And the conversation drifted to more ordinary matters.

There was a message for Mary, next morning. "Mary, you're beautiful." It was a nice compliment, though a strange thing to send on its own like that. But then, Billy *was* strange.

Only later in the day, when the *concierge* informed her that Billy had departed for SpaDe headquarters at three o'clock that morning, did she begin to wonder whether it had greater significance.

By that time Billy the joat and Pazh ap-Rozby were in deep space with about three tons of electronic equipment.

"Was Palgandra surprised when you told him you had cracked the code?"

"He didn't show it Mary, but he must have been. We were. When we told him *how,* though, he was plain annoyed."

"Why?"

"Well," said the joat, "it was a rather nasty leak in his security."

"Yes, I suppose it would be."

"We did give him a nice head start, though, by entirely rewriting the protect routine for him."

"Why did you do that?"

A good question, thought Billy, and one I will evade. "In return for an explanation of what happened to *Pontrjagin.*"

"What did happen?"

"I can't say in detail for legal reasons," said Billy. "But, ironically, it's all inconclusive. The whole political thing is still up in the air. They found out *what*—but they don't know *why.* So now everyone's arguing again. But I'll tell you something."

"Yes?"

"Somebody was up to no good. Whatever it was, they won't find it so easy to keep quiet now."

"I suppose you can't tell me about the code in detail, either?"

"No, there's no problem there, because everything will be changed anyway." Billy leaned back against a cushion, and gazed at a point a few inches in front of his nose. "I should have thought of it sooner, of course. To duplicate the decoder all I needed was the contents of the subdirectory, three days ago. After it had been sent to Bell Central and wiped. Nothing to it, really." He pretended not to notice her hands bunching into fists, and went on, "If they'd sent it by freewave that would have been the end. But they didn't, because they couldn't; for the same reason the IRS couldn't, which caused it all to begin with." He paused for breath. "They sent it by radio, squirted in a beam to Icebox. Funny thing: it takes radio twenty hours to reach Icebox."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"That's significant?"

"Oh yes. What happens if you go about three and a half times as far out? Apart from getting even colder, I mean."

"Of course!"

"Yes, that's just what I said when I finally thought of the obvious. I should have thought of it sooner, but I didn't know they used radio. No, that's a bad excuse—I should have seen it anyway from the timing. But I didn't get thinking about it until after you mentioned your girlfriend. Even then it took me a while to make the connection. Thanks, Mary. If you *hadn't kept worrying at it, I might* never have thought of it."

"Let's see if I've figured it out right. As I see it, by going that far out you get to a place where the message takes oh, perhaps . . . seventy hours . . . to arrive?"

"Exactly. Well, sixty-seven, because it only takes nineteen hours to Icebox. Somewhere out there, strung out in a little stream of pulses, is yesterday's subdirectory. Further out, the day before's. And further out still, the one before that. It's ludicrous really: a whole series of subdirectories, getting fainter and fainter and older and older, wandering off to infinity. I wonder if anyone's picking them up? And what they make of them? All you have to do is switch on your 'hopper, jump out to the right place, and record. With good equipment a week or more delay is no problem. And Pazh's equipment is *very* good, especially if you bear in mind that he read up on an obsolete technique in about an hour, and cannibalized some of Bell's spares, along with a few gadgets of his own. Actually we moved out twice more and recorded three times in all, so that any interference or signal distortion could be sifted out by sideband interferometry. Strictly that's an astronomical technique, but then I know a lot of astronomy.

"Then we shipped it all back home, dumped the subdirectory, fed in the recording, and ran the program. To test it, we fed in a coded message and saw whether it could decode it correctly. It did."

Some three months later, Billy the joat assembled a small electronic device, took a tove to an obscure quarter of the city, checked for a tail and sidled into a booth. The device he affixed like a limpet to the console, then played an arpeggio on the keyboard.

Three seventy-digit numbers appeared momentarily on the screen, then flashed off, to be replaced by their product. Below this he printed the public encoder.

It matched exactly.

Using the limpet he erased all record of the transaction and exited the booth. A hundred yards further along the boardwalk, the limpet dropped quietly into the mud off the raft edge.

The main thing a joat needs is sources of information.

What better source than SpaDe's own computer? ■

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

JERRY POURNELLE

THE FAILURE OF NERVE

There is something seriously wrong with the American scientific community. We've lost our nerve.

Let me try to lead up to that from the back way. Some years ago a psychiatrist named Velikovsky published, for the popular press, a book questioning the basic axioms of astronomy. His theories were almost certainly wrong, but he did argue them rationally and present them in a book; he made no attempt to force them on anyone unless you can call persuasive writing "force"; and nowhere was it suggested that he had the ear of the President, or otherwise controlled public policy on scientific matters.

With one accord the scientific community—or at least a lot of it—turned on Velikovsky. He was hounded from the journals, denounced in the universities, and his supporters—including some scientists whose only crime was to say Velikovsky's theories deserved a fair hearing—were almost literally driven from the campuses. The campaign culminated with a boycott of MacMillan textbooks so effective that MacMillan did the unprecedented; gave a *best-seller* to a rival company which had no textbook department.

In other words, "science" defended itself. True, the defense was needless and unjustified; but it was effective.

The 1979 annual meeting of the American Association for the Advancement of Science (AAAS) was supposed to be held in Chicago; but Margeret Mead recalled that Illinois had not ratified the Equal Rights Amendment, and managed to convince the AAAS Council to remove the meeting to Houston. Whether this did much for women's rights is open to question; but science acted in unison, and at considerable cost (the Houston meeting had the lowest attendence in a decade, and was a financial disaster); and this on an issue only marginally relevant to scientists as scientists. (Please do not send me literature on the merits or lack thereof of ERA; I leave the family policy on that to Mrs. Pournelle, and she has long ago made up her mind on the subject.) The important point is that science itself took action.

Next: we are about to put into orbit a series of communications satellites. When the system is finished, the radio noise levels on Earth will be deafening: that is, we will have a lot of diffi-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

culty hearing quiet signals from the stars. This will have severe consequences for radio astronomers. SETI (Search for Extra-Terrestrial Intelligence) will be even more severely affected; in fact, SETI becomes almost impossible from Earth.

SETI is one of those projects with a low probability of payoff—but the payoff could be high indeed. Just how high we don't know, of course, but it could be astonishing. Just *knowing* that there are others "out there" would be worth a lot. But because the probabilities are low, there was fairly general agreement in the scientific community that SETI is a low-priority effort; that we shouldn't devote a lot of unique resources such as the big dishes at Arecibo and Goldstone to SETI when there are more routine missions the facilities could perform. There was also fairly general agreement that CYCLOPS, an enormous system of radio antennae costing hundreds of millions to billions of dollars, shouldn't have priority in these times of tight scientific budgets.

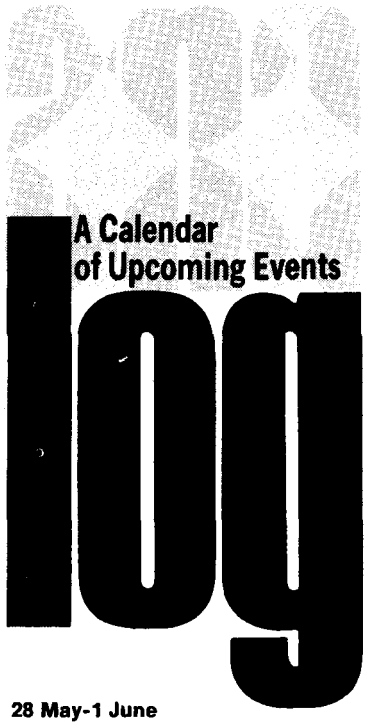
But there's another way. So far, in PROJECT OZMA and other SETI experiments which used Arecibo and big radio astronomy antennae, we've listened to a few stars on a few frequencies at a few times; we've filled in a very tiny number of points on an enormous empty matrix. (All the points we have so far say "no intelligent signal" of course.) It would take a long time to fill in that matrix with those methods. But suppose we could listen to a very large number of channels all at once, and do it with very small antennae; make use of teaching facilities and even amateur antennae nets; that would fill in a lot of data points at quite low costs, and let a number of universities and amateur astronomers participate in SETI.

Under this reasoning Congress was asked for 1.6 million dollars for development of a million-channel receiver and some special-purpose LSI's (Large-Scale Integrated circuits or "chips") that would accomplish the job. The request stressed that although this would be used for SETI, the technology would be very useful for radio astronomy in general; that it wasn't a camel's nose in the door for CYCLOPS; that the payoff would at the least be a good radio sky-map; and that if we don't do this soon we'll *never* be able to do it because of the growing noise problem. (Sure, space facilities will be able to make the sky map one day, but that won't make use of small antennae and amateur capabilities, will it?)

The request had wide scientific support; in fact, there are more disciplines than radio astronomy who could make use of a million-channel receiver and the computer technology to analyze enormous amounts of signal data.

Of course it was rejected. Senator Proxmire not only knocked out the preliminary one million dollars for the large receiver, but spent nearly a full day searching out the subsidiary $600 K request. (If we could keep him out of mischief at a price of $600,000 a day, 365 days would be only $219

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



28 May-1 June
American Geophysical Union, Spring meeting at Washington, D.C. Info: Meetings, AGU, 1909 K Street NW, Washington DC 20006.

4-7 June
National Computer Conference at New York, N.Y. Info: Thomas C. White, AFIPS, 210 Summit Ave, Montvale NJ 07645.

18-20 June
Computers in Radiology and Biomedical Pattern Recognition (IEEE Computer Society) at Newport Beach, CA. Info: Dr. J. Sklansky U. of California, Irvine, School of Engineering, Irvine CA 92717.

22-24 June
Science Fiction Research Association Annual Conference at South Lake Tahoe, CA (Academic SF conference). Technical and academic papers on divers aspects of SF. Info: Milton T. Wolf, SFRA Conference Chairman, University of Nevada Library, University of Nevada-Reno, Reno NV 89557.

22-24 June
MIDWESTCON (non-programmed SF relaxacon) in the general area of Cincinnati, Ohio. Films, banquet, hucksters. Info: Lou Tabakow, 3953 St. John's Terr., Cincinnati OH 45236.

23-27 August 1979
SEACON 79 (37th World Science Fiction Convention) at Metropole Hotel, Brighton, U.K. American Guest of Honour—Fritz Leiber, British Guest of Honour—Brian Aldiss, Fan Guest of Honour—Harry Bell, Toastmaster—Bob Shaw. Registration $10.00 (supporting) $20 (attending). Info: Seacon '79, 14 Henrietta St., London WC2E 8QJ, U. K. This is the science fiction world's annual get-together. Professionals and readers from all over the world will be in attendance. Talks, panels, films, fancy dress competition, banquet, the works. Join now and get to nominate and vote for the Hugo awards and the John W. Campbell Award for Best New Writer.

ANTHONY R. LEWIS

---

*Items for the Calendar should be sent to the Editorial Offices, **four months** in advance of the issue in which you want the item to appear.*

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

million a year; cheap at the price?)

Not only did Proxmire chop out the request, but he designated it for his "Golden Fleece" award, and had a grand old time talking about these dreamy-eyed ivory-tower intellectuals who want to waste the taxpayers' money on silly stunts like searching for little green men. (He does not show a similar regard for protecting the Treasury from raids by the Department of Agriculture, strangely enough.)

And that brings me to my opening point. What did the scientific community do in the face of Proxmire's wrath? Why it rolled over and played dead, of course. Yet it is at least as easy to show that opposition to Proxmire is relevant to the interests of science—as science—as it is to show why the AAAS ought not hold its convention in Illinois until that state ratifies the ERA.

Why didn't Big Science announce, "Anyone who eats Wisconsin cheese is a traitor to the human race?"

Why don't we now? Wisconsin voters would get that message at least as easily as Illinois voters got the message about ERA. And if we're going to put science into politics, for God's sake why don't we get involved defending science itself? (Again: I'm not saying we shouldn't have supported ERA; but dammit, SETI is far more relevant to science as science than is the feminist movement.)

Next item. At the 1979 AAAS meeting there was a session on public policy and nuclear waste disposal. It was explicitly assumed that the participants and listeners were familiar, at least in broad outline, with the technical issues. The purpose was to discuss policy, not technology. One panelist was Gus Spaeth, a White House lawyer and member of the Council on Environmental Quality. A heavy dude; he advises the President on these issues.

Much of the presentation involved a draft report now being circulated through the government; and one of Spaeth's points was that we have to be careful about nuclear wastes because there's a significant probability of the reglaciation of the North American continent.

No one else in the room seemed to react to that, so when came the question period I stood and asked, "If my house is under two hundred and forty feet of ice, will I really be concerned about a minor increase in the chances that I'll get cancer after age 64? Just how much contribution to human misery can nuclear wastes make given a disaster like an Ice Age?"

His reply was that (1) geological experts had told him about the possibility of reglaciation, and (2) we wouldn't want to leave wide areas of the continent contaminated or uninhabitable after the glaciers go away.

And that, for the benefit of those of you who haven't looked at the problem, is sillier by far than Velikovsky's cosmology. To begin with, nuclear wastes consist of fission products (such as barium and krypton) which are fairly hot but short-lived, and actinides (mostly plutonium and uranium) which are very long-lived but

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

not very radioactive. After about 600 years the mixture of fission products and actinides is about as radioactive as was the original ore from which the fuel uranium was refined; and by that time only the actinides are of any great importance. It is totally impossible for the actinides to contaminate large areas. In fact, the whole nuclear waste discussion is concerned with at maximum some fifty to one hundred deaths a year (which you might get if you buried the waste products randomly around the country).

And everyone who has studied the problem knows these facts. They're freshman-level physics. Yet the President's advisor on nuclear waste disposal, speaking as a White House staffer, wasn't aware of the elementary facts; the scientific community doesn't seem horrified, nor does it insist that those who dictate public policy have a minimum of technical knowledge.

Contrast that with the treatment of Velikovsky, who dared publish a book with astronomical inaccuracies. Do we see famous scientists taking to the Johnny Carson show to denounce the lack of knowledge in the White House? Any pressure at all? We do not. We can kick around an aged Russian psychiatrist, but we can't get together to insist that the nuclear waste debate start with elementary facts known to just about everyone except the White House.

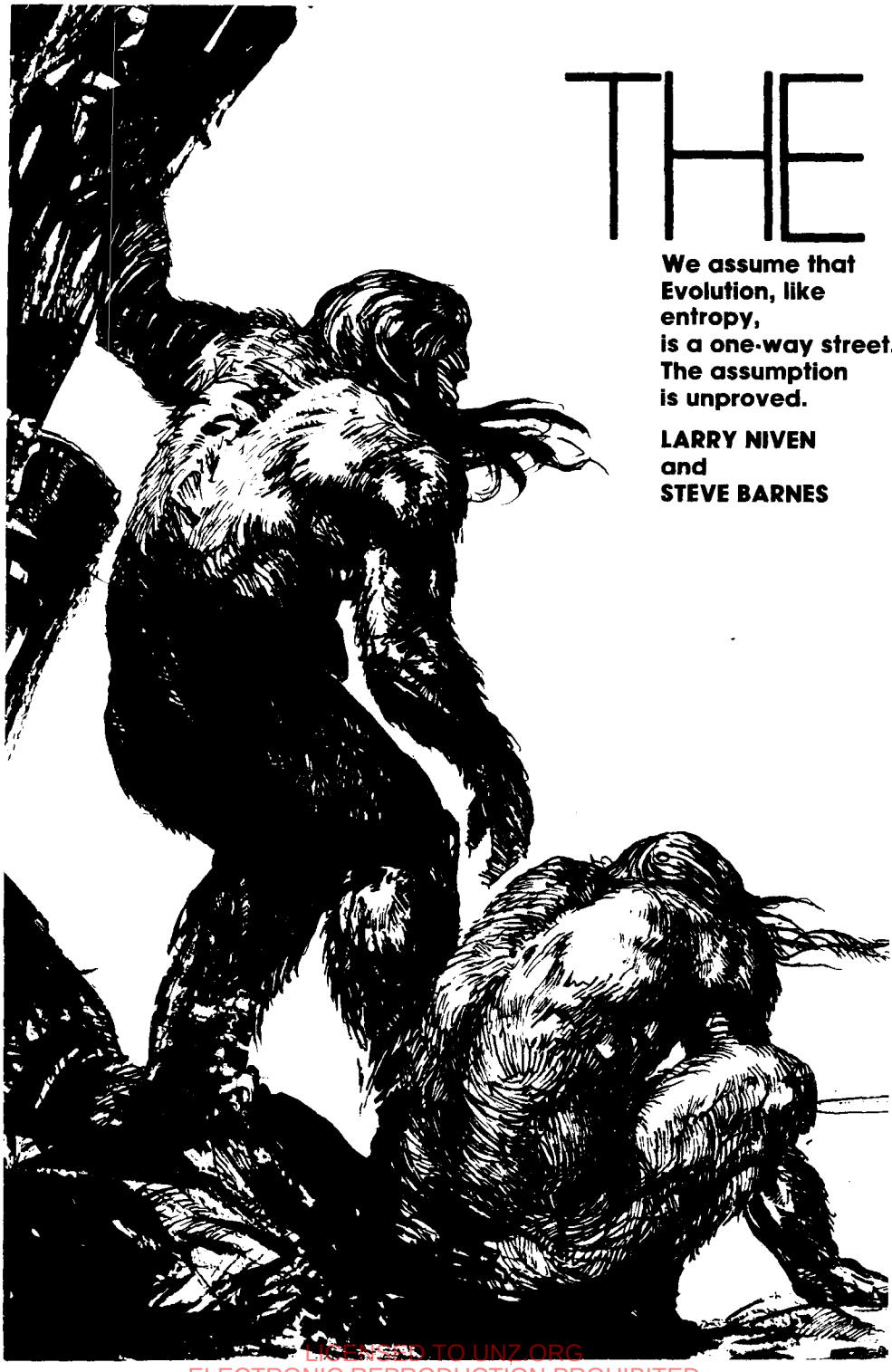
We live in a unique generation. In the past two decades we have discovered more about our universe than any generation ever has; I am tempted to say that any generation ever will (for they'll now learn from textbooks what we made the universe tell us). I can remember as a child horse-drawn wagons bringing ice and milk from door to door, and learning in geography class that my city (Memphis, Tenn.) was the mule-market capital of the world. Now as I write this I am organizing a party for my colleagues who will be coming for the encounter of Voyager with Jupiter.

I have seen technology transform the western world, and do it for the better; I have seen the elimination of many of the mind-stultifying sheer drudgery jobs that once were routinely expected; and I can hope to live to see the liberating, aye *humanizing,* influence of technology and science spread around the world. We have the resources and we have the knowledge. We will make a decision as important for human history as was the discovery of fire, of agriculture, of the wheel, aye, of the lung: we will decide indeed whether we will forever live on "Only One Earth," or if we will continue to our destiny among the planets.

And I fear it is this generation which will make that decision. Will the next still have the resources?

It is against that background that I see the failure of nerve. And yet this need not be. We have seen that science and scientists *can* act together. We have the power and we could have the influence. Can we not use it for ourselves; for science; and thus for man? ■

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



THE

We assume that Evolution, like entropy, is a one-way street. The assumption is unproved.

LARRY NIVEN and STEVE BARNES

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

LOCUSTS

There are no men on Tau Ceti IV.

Near the equator on the ridged ribbon of continent which reaches north and south to cover both poles, the evidence of Man still shows. There is the landing craft, a great thick saucer with a rounded edge, gaping doors and vast empty space inside. Ragged clumps of grass and scrub vegetation surround its base, now. There is the small town where they lived, grew old, and died: tall stone houses, a main street of rock fused with atomic fire, a good deal of machinery whose metal is still bright. There is the land itself, overgrown but still showing the traces of a square arrangement that once marked it as farmland.

And there is the forest, reaching north and south along the sprawling ribbon of continent, spreading even to the innumerable islands which form two-thirds of Ridgeback's land mass. Where forest cannot grow, because of insufficient water or because the carefully bred bacteria have not yet built a sufficient depth of topsoil, there is grass, an exceptionally hardy hybrid of Buffalo and Cord with an abnormal number of branching roots, developing a dense and fertile sod.

There are flocks of moas, resurrected from a lost New Zealand valley. The great flightless birds roam freely, sharing their grazing land with expanding herds of wild cattle and buffalo.

There are things in the forest. They prefer it there, but will occasionally shamble out into the grasslands and sometimes even into the town. They themselves do not understand why they go: there is no food, and they do not need building materials or other things which may be there for the scavenging. They always leave the

DOUG BEEKMAN

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

town before nightfall arrives.

When men came the land was as barren as a tabletop.

Doc and Elise were among the last to leave the ship. He took his wife's hand and walked down the ramp, some little-boy part of him eager to feel alien loam between his toes. He kept his shoes on. They'd have to make the loam first.

The other colonists were exceptionally silent, as if each were afraid to speak. Not surprising, Doc thought. The first words spoken on Ridgeback would become history.

The robot probes had found five habitable worlds besides Ridgeback in Earth's neighborhood. Two held life in more or less primitive stages, but Ridgeback was perfect. There was one-celled life in Ridgeback's seas, enough to give the planet an oxygenating atmosphere; and no life at all on land. They would start with a clean slate.

So the biologists had chosen what they believed was a representative and balanced ecology. A world's life was stored in the cargo hold now, in frozen fertilized eggs and stored seeds and bacterial cultures, ready to go to work.

Doc looked out over his new home, the faint seabreeze stinging his eyes. He had known Ridgeback would be barren, but he had not expected the *feel* of a barren world to move him.

The sky was bright blue, clouds shrouding Tau Ceti, a sun wider and softer than the sun of Earth. The ocean was a deeper blue, flat and calm. There was no dirt. There was dust and sand and rock, but nothing a farming man would call dirt. There were no birds, no insects. The only sound was that of sand and small dust-devils dancing in the wind, a low moan almost below the threshold of human hearing.

Doc remembered his college geology class' fieldtrip to the Moon. Ridgeback wasn't dead as Luna was dead. It was more like his uncle's face, after the embalmers got through with him. It looked alive, but it wasn't.

Jase, the eldest of them and the colony leader, raised his hand and waited. When all eyes were on him he crinkled his eyes happily, saving his biggest smile for his sister Cynnie, who was training a holotape camera on him. "We're here, people," his voice boomed in the dead world's silence. "It's good, and it's ours. Let's make the most of it."

There was a ragged cheer and the colonists surged toward the cargo door of the landing craft. The lander was a flattish dome now, its heat shield burned almost through, its Dumbo-style atomic motor buried in dust. It had served its purpose and would never move again. The great door dropped and became a ramp. Crates and machinery began to emerge on little flatbed robot trucks.

Elise put her arm around her husband's waist and hugged him. She murmured, "It's so empty."

"So far." Doc unrolled a package of birth control pills, and felt her flinch.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Two years before we can have children."

Did she mean it as a question? "Right," he said. They had talked it through too often, in couples and in groups, in training and aboard ship. "At least until Jill gets the ecology going."

"Uh huh." An impatient noise.

Doc wondered if she believed it. At twenty-four, tall and wiry and with seven years of intensive training behind him, he felt competent to handle most emergencies. But children, and babies in particular, were a problem he could postpone.

He had interned for a year at Detroit Memorial, but most of his schooling related directly to General Colonization. His medical experience was no better than Elise's, his knowledge not far superior to that of a 20th century GP. Like his shipmates, Doc was primarily a trained crewman and colonist. His courses in world settling—"funny chemistry," water purification, basic mine engineering, exotic factor recognition, etc.—were largely guesswork. There were no interstellar colonies, not yet.

And bearing children would be an act of faith, a taking possession of the land. Some had fought the delay bitterly. The starship would have been smelling of babies shortly after takeoff if they'd had their way.

He offered Elise a pill. "Bacteria and earthworms come first. Men last," he said. "We're too high on the chain. We can't overload the ecology—"

"Uh huh."

"—before we've even got one. And look—"

She took a six-month birth control pill and swallowed it.

So Doc didn't say: suppose it doesn't work out? Suppose we have to go home? He passed out the pills and watched the women take them, crossing names off a list in his head.

The little Robot trucks were all over the place now. Their flat beds were endless belts, and they followed a limited repertoire of voiced orders. They had the lander half unloaded already. When Doc had finished his pill pushing he went to work beside Elise, unloading crates. His thirty patients, including himself, were sickeningly healthy. As an unemployed doctor he'd have to do honest work until someone got ill.

He was wrong, of course. Doc had plenty of employment. His patients were doing manual labor in 1.07 gravities. They'd gained an average of ten pounds the moment the landing craft touched down. It threw their coordination and balance off, causing them to strain muscles and gash themselves.

One of the robot trucks ran over Chris' foot. Chris didn't wince or curse as Doc manipulated the bones, but his teeth ground silently together.

"All done here, Chris." Doc smiled. The meteorologist looked at him bleakly from behind wire-rimmed glasses, eyes blinking without emotion. "Hey, you're a better man than I am. If I had a wound like that, I'd

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

scream my head off—"

Something only vaguely like a smile crossed Chris' lips. "Thanks, Doc," he said, and limped out.

Remarkable control, Doc mused. But then again, that's Chris.

A week after landing, Ridgeback's nineteen-hour day caught up with them. Disrupted body rhythms are no joke; adding poor sleep to the weight adjustment led to chronic fatigue. Doc recognized the signs quickly.

"I'm surprised that it took this long," he said to Elise as she tossed, sleepless.

"Why couldn't we have done our adjusting on ship?" she mumbled, opening a bleary eye.

"There's more to it than just periods of light and darkness. Every planet has its own peculiarities. You just have to get used to them before your sleep cycles adjust."

"Well what am I supposed to do? Jesus, hand me the sleeping pills, wouldja please? I just want to sleep."

"Nope. Don't want anyone hooked on sleeping pills. We've got the 'russian sleep' sets. You'll have one tomorrow." The 'russian sleep' headsets were much preferred over chemical sedatives. They produced unconsciousness with a tiny trickle of current through the brain.

"Good," Elise yawned. "Sunset and dawn, they both seem to come too soon."

The colony went up fast. It was all prefabs, makeshift and temporary, the streets cluttered with the tools, machinery and electric cables which nobody had put away because there was no place for them. Gradually places were made. Hydroponic tanks were assembled and stocked, and presently the colonists were back on fresh food.

Much more gradually, the stone houses began to appear.

They blasted their own rock from nearby cliffs with guncotton from the prefab chemical factory. They hauled the fractured stone on the robot trucks, and made concrete to stick it together. There was technology to spare, and endless power from the atomic motor in the landing craft. They took their time with the houses. Prefabs would weather the frequent warm rains for long enough. The stone houses were intended to last much longer. The colonists built thick walls, and left large spaces so that the houses could be expanded when later generations saw fit.

Doc squinted into the mirror, brushing his teeth with his usual precise vertical movements. He jumped when he felt a splash of hot water hit his back. "Cut that out, Elise," he laughed.

She settled back in her bathtub, wrinkling her nose at him. Three years of meagre showers on the ship had left her dying for a real bathtub, where she could waste gallons of water without guilt.

"Spoilsport," she teased. "If you were any kind of fun, you'd come over here and . . ."

"And what?" he asked, interested.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"And rub my back."

"And that's supposed to be fun?"

"I was thinking that we could rub it with you." She grinned, seeing Doc's eyes light up. "And then maybe we could rub you with me . . ."

Later, they toweled each other off, still tingling. "Look!" Doc said, pulling her in front of the mirror. He studied her, marveling. Had Elise become prettier, or was he seeing her with new eyes? He knew she laughed louder and more often than when they had met years ago in school, she the child of a wealthy family and he a scholarship student who dreamt of the stars. He knew that her body was more firm and alive than it had been in her teens. The same sun that had burnt her body nut-brown had lightened her reddish hair to strawberry blond. She grinned at him from the mirror and asked, "Do you propose to take all the credit?"

He nodded happily. He'd always been fit, but his muscles had been stringy, the kind that didn't show. Now they bulged, handsome curves filling out chest and shoulders, legs strong from lifting and moving rock. His skin had darkened under the probing of a warm, friendly sun. He was sleeping well, and so was she.

All of the colonists were darker, more muscular, with thicker calluses on hands and feet. Under open sky or high ceilings they walked straighter than the men and women of Earth's cities. They talked more boldly and seemed to fill more space. In the cities of Earth, the ultimate luxury had been building space. It was beyond the means of all but the wealthiest. Here, there was land for the taking, and twelve foot ceilings could be built. The house Doc was building for Elise—almost finished now—would be as fine as any her father could have built for her. One that would be passed on to their children, and then to their grandchildren . . .

She seemed to echo his thought. "One last step. I want a bulge, right here," and she patted her flat abdomen. "Your department."

"And Jill's. We're up to mammals already, and we're adjusting. I've got half the 'russian sleep' sets back in the infirmary already."

The Orion spacecraft was a big, obtrusive object, mace-shaped, cruising constantly across the sky. What had been a fifth of a mile of deuterium snowball, the fuel supply for the starship's battery of laser-fusion motors, was now a thin, shiny skin, still inflated by the residue of deuterium gas. It was the head of the mace. The life support system, ending in motors and shock absorbers, formed the handle.

Roy had taken the ground-to-orbit craft up and was aboard the Orion now, monitoring the relay as Cynnie beamed her holotape up. It was lonely. Once there had been too little room; now there was too much. The ship still smelled of too many people crowded too close for too long. Roy adjusted the viewscreen and grinned back at Cynnie's toothy smile.

"This is Year Day on Ridgeback," she said in her smooth announcer's

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

voice. "It was a barren world when we came. Now, slowly, life is spreading across the land. The farming teams have spent this last year dredging mulch from the sea bed and boiling it to kill the native life. Now it grows the tame bacteria that will make our soil." The screen showed a sequence of action scenes: tractors plowing furrows in the harsh dirt; colonists glistening with sweat as they pulled boulders from the ground; and Jill supervising the spreading of the starter soil. Grass seed and earthworms were sown into the trenches, and men and machines worked together to fold them into the earth.

Cynnie had mounted a camera on one of the small flyers for an aerial view. "The soil is being spread along a ten-mile strip," she said, "and grains are being planted. Later we'll have fruit trees and shade trees, bamboo and animal feed."

It was good, Roy thought, watching. It was smooth. Getting it all had been rough enough. Before they were finished the colonists had become damn sick of Roy and Cynnie poking their cameras into their every activity. That sign above the auditorium toilet: Smile! Roy Is Watching!

He'd tried to tell them. "Don't you know who it is that builds starships? It's taxpayers, that's who! And they've got to get something for their money. Sure we're putting on a show for them. If we don't, when election time comes around they may ask for a refund."

Oh, they probably believed him. But the sign was still up.

Roy watched Cynnie interview Jase and Brew in the fields; watched Angie and Chris constructing the animal pens. Jill thawed some of the fertilized goat eggs and a tape was shown of the wriggling embryos.

"At first," Cynnie reminisced, "Ridgeback was daunting. There was no sound: no crickets, no birdsongs, but no roar of traffic either. By day, the sky is Earthlike enough, but by night the constellations are brighter. It's impossible to forget how far from home we are—we can't even see Sol, invisible somewhere in the northern hemisphere. It's hard to forget that no help of any kind could come in much less than twenty-five years. It would take five years just to refuel the ship. It takes fourteen years to make the trip, although thanks to relativity it was only three years 'ship time.'

"Yes, we are alone." The image of Cynnie's sober face segued to the town hall, a geodesic dome of metal tubing sprayed with plastic. "But it is heartening that we have found, in each other, the makings of a community. We come together for midday meal, discussions, songfests and group worship services."

Cynnie's face was calm now, comforting. "We have no crime, and no unemployment. We're much too busy for marital squabbles or political infighting." She grinned, and the sparkle of her personality brought pleasure to Roy's analytical mind. "In fact, I have work to do myself. So, until next year, this is Cynnie Mitchell on

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Ridgeback, signing off."

A year and a half after landing, a number of animals were out of incubation with a loss of less than two percent. The mammals drank synthetic milk now, but soon they would be milling in their pens, eating Ridgeback grass and adding their own rich wastes to the cooking compost heaps.

Friday night was community night at the town hall.

From the inside the ribs of the dome were still visible through the sprayed plastic walls, and some of the decorations were less than stylish, but it was a warm place, a friendly, relaxing place where the common bond between the Ridgebackers was strengthened.

Jill, especially, seemed to love the stage, and took every opportunity to mount it, almost vibrating with her infectious energy.

"Everything's right on schedule," she said happily. "The fruit flies are breeding like mad." (Booo!) "And if I hear that again I'm gonna break out the mosquitos. Gang, there are things we can live without, but we don't know what they are yet. Chances are we'll be raising the sharks sooner or later. We've been lucky so far. Really lucky." She cleared her throat dramatically, "And speaking of luck, we have Chris with some good news for the farmers, and bad news for the sunbathers. Chris?"

There was scattered applause, most vigorously from Chris' tiny wife Angie. He walked to the lecturn and adjusted the microphone before speaking.

"We, uh," he took off his glasses, polishing them on his shirt, then replaced them, smiling nervously. "We've been having good weather, people, but there's a storm front moving over the mountains. I think Greg can postpone the irrigation canals for a week, we're going to get plenty wet."

He coughed, and moved the microphone close to his mouth. "June and I are working to program the atmospheric model into the computer. Until we do, weather changes will keep catching us unaware. We have to break down a fairly complex set of thermo and barometric dynamics into something that can be dealt with systematically—wind speed, humidity, vertical motion, friction, pressure gradients, and a lot of other factors still have to be fed in, but we're making progress. Maybe next year we'll be able to tell you how to dress for the tenth anniversary of Landing Day."

There were derisive snorts and laughter, and Chris was applauded back into his seat.

Jase bounded onto the stage and grabbed the mike. "Any more announcements? No? Alright, then, we all voted on tonight's movie, so no groans, please. Lights?"

The auditorium dimmed. He slipped from the stage and the twin beams of the holo projector flickered onto the screen.

It was a war movie, shot in flatfilm but optically reconstructed to simulate depth. Doc found it boring. He slipped

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

out during a barrage of cannon fire. He headed to the lab and found Jill there already, using one of the small microscopes.

"Hi hon," he called out, flipping on his desk light. "Working late?"

"Well, I'm maybe just a wee bit more bugged than I let on. Just a little."

"About what?"

"I keep thinking that one day we'll find out that we left something out of our tame ecology. It's just a feeling, but it won't go away."

"Like going on vacation," Doc said, deliberately flippant. "You know you forgot something. You'd just rather it was your toothbrush and not your passport."

She smeared a cover glass over a drop of fluid on a slide and set it to dry. "Yes, it feels like that."

"Do you really have mosquitos in storage?"

She twinkled and nodded. "Yep. Hornets too."

"Just how good is it going? You know how impatient everyone is."

"No real problems. There sure as hell might have been, but thanks to my superior planning—" she stuck out her tongue at Doc's grimace. "We'll have food for ourselves and all the children we can raise. I've been getting a little impatient myself, you know? As if there's a part of me that isn't functioning at full efficiency."

Doc laughed. "Then I think you'd better tell Greg."

"I'll do better. I'll announce it tonight and let all the fathers-to-be catch the tidings in one shot."

"Oh boy."

"What?"

"No, it has to be done that way. I know it. I'm just thinking about nine months from now. Oh boy."

So it was announced that evening. As Doc might have expected, someone had already cheated. Somehow Nat, the midwestern earthmother blond, had taken a contraceptive pill and, even with Doc watching, had avoided swallowing it. Doc was fairly sure that her husband Brew knew nothing of it, although she was already more than four months along when she confessed.

Nat had jumped the gun, and there wasn't a woman on Ridgeback who didn't envy her. A year and eleven months after Landing Day, Doc delivered Ridgeback's first baby.

Sleepy, exhausted by her hours of labor, Nat looked at her baby with a pride that was only half maternal. Her face was flushed, yellow hair tangled in mats with perspiration and fatigue. She held her baby, swaddled in blankets, at her side. "I can hear them outside. What do they want?" she asked drowsily, fighting to keep her eyelids open.

Doc breathed deeply. Ridiculous, but the scentless air of Ridgeback seemed a little sweeter. "They're waiting for a glimpse of the little crown princess."

"Well, she's staying here. Tell them she's beautiful," Ridgeback's first mother whispered, and dropped off to sleep.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Doc washed his hands and dried them on a towel. He stood above the slumbering pair, considering. Then he gently pried the baby from her mother's grip and took her in his arms. Half-conscious mother's wish or no, the infant must be shown to the colony before they could rest. Especially Brew. He could see the Swede's great broad hands knotting into nervous fists as he waited outside. And the rest of them in a half-crescent around the door; and the inevitable Cynnie and Roy with their holotape cameras.

"It's a girl," he told them. "Nat's resting comfortably." The baby was red as a tomato and looked as fragile as Venetian glass. She and Doc posed for the camera, then Doc left her with Brew to make a short speech.

Elise and Greg, Jill's husband, had both had paramedic training. Doc set up a rotating eight-hour schedule for the three of them, starting with Elise. The group outside was breaking up as he left, but he managed to catch Jase.

"I'd like to be taken off work duties for a while," he told the colony leader, when the two were alone.

Jase gripped his arm. "Something's wrong with the baby?" There was a volume of concern in the question.

"I doubt it, but she is the first, and I want to watch her and Nat. Most of the women are pregnant now. I want to keep an eye on them, too."

"You're not worried about anything specific?"

"No."

When Elise left her shift at the maternity ward, she found him staring at the stone ceiling. She asked, "Insomnia again? Shall I get a 'russian sleep' set?"

"No."

She studied his face. "The baby?"

She'd seen it too, then. "You just left the baby. She's fine, isn't she?"

"They're both fine. Sleeping. Harry?" She was the only one who called him that. "What is it?"

"No, nothing's bothering me. You know everything *I* know. It's just that . . ."

"Well?"

"It's just that I want to do everything right. This is so important. So I keep checking back on myself, because there's no one I can call in to check my work. Can you understand what I'm getting at?"

She pursed her lips. Then said, "I know that the only baby in the world could get a lot more attention than she needs. There shouldn't be too many people around her, and they should all be smiling. That's important to a baby."

Doc watched as she took off her clothes and got into bed. The slight swell of her pregnancy was just beginning to show. Within six months there would be nine more children on Ridgeback, and one would be theirs.

Predictably, Brew's and Nat's daughter became Eve.

It seemed nobody but Doc had noticed anything odd about Eve. Even laymen know better than to expect a newborn child to be pretty. A baby doesn't begin to look like a baby until

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

it is weeks old. The cherubs of the Renaissance paintings of Foucquet or Conegliano were taken from two-year-olds. Naturally Eve looked odd, and most of the colony, who had never seen newborn children, took it in their stride. . . .

But Doc worried.

The ship's library was a world's library. It was more comprehensive, and held more microfilm and holographically encoded information than any single library on earth. Doc spent weeks running through medical tapes, and got no satisfaction thereby.

Eve wasn't sick. She was a "good baby"; she gave no more trouble than usual, and no less. Nat had no difficulty nursing her, which was good, as there were no adult cows available on Ridgeback.

Doc pulled a microfisch chip out of the viewer and yawned irritably. The last few weeks had cost him his adjustment to Ridgeback time, and gained him . . . well, a kind of general education in pediatrics. There was nothing specific to look for, no *handle* on the problem.

Bluntly put, Eve was an ugly baby.

There was nothing more to say, and nothing to do but wait.

Roy and Cynnie showed their tapes for the year. Cynnie had a good eye for detail. Until he watched the camera view trucking from the landing craft past the line of houses on Main Street, to Brew, to a closeup of Brew's house, Doc had never noticed how Brew's house reflected Brew himself. It was designed like the others: tall and squarish, with a sloped roof and small window. But the stones in Brew's house were twice the size of those in Doc's house. Brew was proud of his strength.

Roy was in orbit on Year Day, but Cynnie stayed to cover the festivities, such as they were. Earth's hypothetical eager audience still hadn't seen Year Day One. Jase spoke for the camera, comparing the celebration with the first Thanksgiving Day in New England. He was right: it was a feast, a display of the variety of foods Ridgeback was now producing, and not much more than that.

His wife June sang a nondenominational hymn, and they all followed along, each in his own key. Nat fed Eve a bit of corncake and fruit juice, and the colonists applauded Eve's gurgling smile.

The folks back on Earth might not have thought it very exciting, but to the Ridgebackers it meant everything. This was food they had grown themselves. All of them had bruises or blisters or calluses from weeding or harvesting. They were more than a community now, they were a world, and the fresh fruit and vegetables, and the hot breads, tasted better than anything they could have imagined.

Six months after the birth of Eve, Doc was sure. There was a problem.

The children of Ridgeback totaled seven. Two of the women had miscarried, fewer than he might have feared, and without complications. Jill was

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

still carrying hers, and Doc was beginning to wonder; but it wasn't serious yet. Jill was big and strong with wide hips and a deep bust. Even now Greg was hard put to keep her from commandeering one of the little flyers and jouncing off to the coastline to check the soil, or inland to supervise the fresh water fish preserve. Give her another week . . .

The night Elise had delivered their child, it had been special. She had had a dry birth, with the water sack rupturing too early, and Doc had had to use a lubrication device. Elise was conscious during the entire delivery, eschewing painkillers for the total experience of her first birth. She delivered safely, for which Doc had given silent thanks. His nerves were scraped to supersensitivity, and he found himself just sitting and holding her hand, whispering affection and encouragement to her, while Greg did much of the work. With Elise's approval he named their son Gerald, shortened to Jerry. Jerry was three weeks old now, healthy and squalling, with a ferocious grip in his tiny hands.

But even a father's pride could not entirely hide the squarish jawline, the eyes, the . . .

All the children had it, all the six recent ones. And Eve hadn't lost it. Doc continued his research in the microlibrary, switching from pediatrics to genetics. He had a microscope and an electron microscope, worth their hundreds of thousands of dollars in transportation costs; he had scrapings of his own flesh and Eve's and Jerry's. What he lacked was a Nobel Prize geneticist to stand behind his shoulder and point out what were significant deviations as opposed to his own poor slide preparation techniques.

He caught Brew looking at him at mealtimes, as though trying to raise the nerve to speak. Soon the big man would break through his inhibitions, Doc could see it coming. Or perhaps Nat would broach the question. Her eldest brother had been retarded, and Doc knew she was sensitive about it. How long could it be before that pain rose to the surface?

And what would he say to them then?

It was not a mutation. One could hardly expect the same mutation to hit all of seven couples in the same way.

It was no disease. The children were phenomenally healthy.

So Doc worked late into the night, sometimes wearing a black scowl as he retraced dead ends. He needed advice, and advice was 11.9 light years away. Was he seeing banshees? Nobody else had noticed anything. Naturally not; the children all looked normal, for they all looked alike. Only Brew seemed disturbed. Hell, it was probably Doc that was worrying Brew, just as it was Doc that worried Elise. He ought to spend more time with Elise and Jerry.

Jill lost her baby. It was stillborn, pitiful in its frailty. Jill turned to Greg as the dirt showered down on the cloth that covered her child, biting her lip

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

savagely, trying to stop the tears. She and her husband held each other for a long moment, then, with the rest of the colonists, they walked back to the dwellings.

The colonists had voted early, and unanimously, to give up coffins on Ridgeback. Humans who died here would give their bodies to the conquest of the planet. Doc wondered if a coffin would have made this ceremony easier, more comforting in its tradition. Probably not, he thought. Dead is dead.

Doc went home with Elise. He'd been spending more time there lately, and less time with the miscroscopes. Jerry was crawling now, and he crawled everywhere; you had to watch him like a hawk. He could pick his parents unerringly out of a crowd of adults, and he would scamper across the floor, cooing, his eyes alight . . . his deepset brown eyes.

It was a week later that Jase came to him. After eight hours of labor June had finally released her burden. For a newborn infant the body was big and strong, though in any normal context he was a fragile, precious thing. As father, Jase was entitled to see him first. He looked down at his son and said, "He's just like the others." His eyes and his voice were hollow, and at that moment Doc could no longer see the jovial colony leader who called squaredances at the weekly hoedown.

"Of course he is."

"Look, don't con me, Doc. I was eight when Cynnie was born. She didn't look like any of them. And she never looked like Eve."

"Don't you think that's for me to say?"

"Yes. And damned quick!"

Doc rubbed his jaw, considering. If he was honest with himself he had to admit he ached to talk to somebody. "Let's make it tomorrow. In the ship's library."

Jase's strong hand gripped his arm. "Now."

"Tomorrow, Jase. I've got a lot to say, and there are things in the library you ought to see."

"Here," he said, dialling swiftly. A page appeared on the screen, three-quarters illustration, and one-quarter print to explain it. "Notice the head? And the hands. Eve's fingers are longer than that. Her forehead slopes more. But look at these." He conjured up a series of growth states paired with silhouettes of bone structure.

"So?"

"She's maturing much faster than normal."

"Oh."

"At first I didn't think anything about the head. Any infant's head is distorted during passage from the uterus. It goes back to normal if the birth wasn't difficult. And you can't tell much from the features; all babies look pretty much alike. But the hands and arms bothered me."

"And now?"

"See for yourself. Her face is too big and her skull is too small and too flat. And I don't like the jaw, or the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

thin lips." Doc rubbed his eyes wearily. "And there's the hair. That much hair isn't unheard of at that age, but taken with everything else . . . you can see why I was worried."

"And all the kids look just like her. Even Jase Junior."

"Even Jerry. And Jill's stillbirth."

In the ship's library there was a silence as of mourning.

Jase said, "We'll have to tell Earth. The colony is a failure."

Doc shook his head. "We'd better see how it develops first."

"We can't have normal children, Doc."

"I'm not ready to give up, Jase. And if it's true, we can't go back to Earth, either."

"What? Why?"

"This thing isn't a mutation. Not in us, it can't be. What it could be is a virus replacing some of the genes. A virus is a lot like a free-floating chromosome anyway. If we've got a disease that keeps us from having normal children—"

"That's stupid. A virus here, waiting for us, where there's nothing for it to live on but plankton? You—"

"No, no, no. It had to come with us. Something like the common cold could have mutated aboard ship. There was enough radiation outside the shielding. Someone sneezes in the airlock before he puts his helmet on. A year later someone else inhales the mutant."

Jase thought it through. "We can't take it back to Earth."

"Right. So what's the hurry? It'd be twenty-four years before they could answer a cry for help. Let's take our time and find out what we've really got."

"Doc, in God's name, what can we tell the others?"

"Nothing yet. When the time comes I'll tell them."

Those few months were a busy time for Ridgeback's doctor. Then they were over. The children were growing, and most of the women were pregnant, including Angie and Jill, who had both had miscarriages. Never again would all the women of Ridgeback be having children in one ear-shattering population explosion.

Now there was little work for Doc. He spoke to Jase, who put him on the labor routines. Most of the work was agricultural, with the heavy jobs handled by machines. Robot trucks, trailing plows, scored rectangular patterns across the land.

The fenced bay was rich in Earth-born plankton, and now there were larger forms to eat the plankton. Occasionally Greg opened the filter to let discolored water spread out into the world, contaminating the ocean.

At night the colonists watched news from Earth, 11.9 years in transit, and up to a year older before Roy boarded the starship to beam it down. They strung the program out over the year in hour segments to make it last longer. There were no wars in progress, to speak of; the Procyon colony project had been abandoned; Macrostructures Inc. was still trying to build an inter-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

stellar ramjet. It all seemed very distant.

Jase came whistling into Doc's lab, but backed out swiftly when he saw that he had interrupted a counselling session with Cynnie and Roy. Doc was the closest thing the colony had to a marriage therapist. Jase waited outside until the pair had left, then trotted in.

"Rough day?"

"Yeah. Jase, Roy and Cynnie don't fight, do they?"

"They never did. They're like twins. Married people do get to be like each other, but those two overdo it sometimes."

"I knew it. There's something wrong, but it's not between them." Doc rubbed his eyes on his sleeve. "They were sounding me out, trying to get me talking about the children without admitting they're scared. Anyway . . . what's up?"

Jase brought his hands from behind his back. He held two bamboo poles rigged for fishing. "What say we exercise our manly prerogatives?"

"Ye gods! In our private spawning ground?"

"Why not? It's big enough. There are enough fish. And we can't let the surplus go; they'd starve. It's a big ocean."

By now the cultivated strip of topsoil led tens of miles north and south along the continent. Jill claimed that life would spread faster that way, outward from the edges of the strip. The colony was raising its own chicken eggs and fruit and vegetables. On Landing Day they'd been the first in generations to taste moa meat, whose rich flavor had come *that* close to making the New Zealand bird extinct. Why shouldn't they catch their own fish?

They made a full weekend of it. They hauled a prefab with them on the flyer and set it up on the barren shore. For three days they fished with the springy bamboo poles. The fish were eager and trusting. They ate some of their catch, and stored the rest for later.

On the last day Jase said, "I kept waiting to see you lose some of that uptight look. You finally have, a little, I think."

"Yeah. I'm glad this happened, Jase."

"Okay. What about the children?"

He didn't need to elaborate. Doc said, "They'll never be normal."

"Then what are they?"

"I dunno. How do you tell people who came twelve light years to build a world that their heirs will be . . ." he groped for words. "Whatever. Changed. Animals."

"Christ. What a mess."

"Give me time to tell Elise . . . if she hasn't guessed by now. Maybe she has."

"How long?"

"A week, maybe. Give us time to be off with Jerry. Might make it easier if we're with him."

"Or harder."

"Yeah, there's that." He cast his line out again. "Anyway, she'll keep

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

the secret, and she'd never forgive me if I didn't tell her first. And you'd better tell June the night before I make the big announcement." The words seemed to catch in his throat and he hung his head, miserable.

Tentatively Jase said, "It's absolutely nobody's fault."

"Oh, sure. I was just thinking about the last really big announcement I helped to make. Years ago. Seems funny now, doesn't it? 'It's safe, people. You can start dreaming now. Go ahead and have those babies, folks. It's all right . . .' His voice trailed off and he looked to Jase in guilty confusion. "What could I do, Jase? It's like thalidomide. In the beginning, it all looked so wonderful."

Jase was silent, listening to the sound of water lapping against the boat. "I just hate to tell Earth, that's all," he finally said in a low voice. "It'll be like giving up. Even if we solve this thing, they'd never risk sending another ship."

"But we've got to warn them."

"Doc, what's *happening* to us?"

"I don't know."

"How hard have you—no, never mind." Jase pulled his line in, baited it and sent it whipping out again. Long silences are in order when men talk and fish.

"Jase, I'd give anything I have to know the answer. Some of the genes look different in the electron microscope. Maybe. Hell, it's all really too fuzzy to tell, and I don't really know what it means anyway. None of my training anticipated anything like *this*. *You* try to think of something."

"Alien invasion."

Pause. "Oh, really?"

Jase's line jumped. He wrestled in a deep sea bass and freed the hook. He said, "It's the safest, most painless kind of invasion. They find a world they want, but there's an intelligent species in control. So they design a virus that will keep us from bearing intelligent children. After we're gone they move in at their leisure. If they like they can use a countervirus, so the children can bear human beings again for slaves."

The bamboo pole seemed dead in Doc's hands. He said, "That's uglier than anything I've thought of."

"Well?"

"Could be. Insufficient data. If it's true, it's all the more reason to warn Earth. But Ridgeback is doomed."

Jerry had his mother's hair, sun-bleached auburn. He had too much of it. On his narrow forehead it merged with his brows . . . his shelf of brow, and the brown eyes watching from way back. He hardly needed the shorts he was wearing; the hair would have been almost enough. He was nearly three.

He seemed to sense something wrong between his parents. He would spend some minutes scampering through the grove of sapling fruit trees, agile as a child twice his age; then suddenly return to take their hands and try to tug them both into action.

Doc thought of the frozen fertilized

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

eggs of dogs in storage. Jerry with a dog . . . the thought was repulsive. Why? Shouldn't a child have a dog?

"Well, of course I guessed *something*," Elise said bitterly. "You were always in the library. When you were home, the way that you looked at Jerry . . . and me, come to think of it. I see now why you haven't taken me to bed much lately." She'd been avoiding his eyes, but now she looked full at him. "I *do* see. But, Harry, couldn't you have asked me for help? I have some medical knowledge, and, and I'm your wife, and Jerry's mother, damn it Harry!"

"Would you believe I didn't want you worrying?"

"Oh, really? How did it work?"

Her sarcasm cut deep. Bleeding, he said, "Nothing worked."

Jerry came out of the trees at a tottering run. Doc stood up, caught him, swung him around, chased him through the trees . . . came back puffing, smiling, holding his hand. He almost lost the smile, but Elise was smiling back, with some effort. She hugged Jerry, then pulled fried chicken from the picnic basket and offered it around.

She said, "That alien invasion idea is stupid."

"Granted. It'd be easy to think someone has 'done' it to us."

"Haven't you found anything? Isn't there anything I can help with?"

"I've found a lot. All the kids have a lower body temperature, two point seven degrees. They're healthy as horses, but hell, who would they catch measles from? Their brain capacity is too small, and not much of it is frontal lobe. They're hard to toilet train and they should have started babbling, at least, long ago. What counts is the brain, of course."

Elise took one of Jerry's small hands. Jerry crawled into her lap and she rocked him. "His hands are okay. Human. His eyes . . . are brown, like yours. His cheekbones are like yours, too. High and a little rounded."

Doc tried to smile. "His eyes look a little strange. They're not really slanted enough to suspect mongolism, but I'll bet there's a gene change. But where do I go from there? I can see differences, and they're even consistent, but there's no precedent for the analysis equipment to extrapolate from." Doc looked disgusted. Elise touched his cheek, understanding.

"Can you teach me to use an electron microscope?"

Doc sat at the computer console, watching over Jill's shoulder as she brought out the Orion vehicle's image of Ridgeback. The interstellar spacecraft doubled as a weather eye, and the picture, once drab with browns and grays, now showed strips of green beneath the fragmented cloud cover. If Ridgeback was dead, it certainly didn't show on the screen.

"Well, we've done a fair old job." Jill grinned and took off her headset. Her puffy natural had collected dust and seeds and vegetable fluff until she gave up and shaved it off. The tightly curled mat just covered her scalp now,

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

framing her chocolate cameo features. "The cultivated strip has spread like weeds. All along the continent now I get CO_2-oxygen exchange. It jumped the ridges last year, and now I get readings on the western side."

"Are you happy?"

"No," she said slowly. "I've done my job. Is it too much to want a child too? I wouldn't care about the . . . problem. I just want . . ."

"It's nobody's fault," Doc said helplessly.

"I know, I know. But two miscarriages. Couldn't they have known back on Earth? Wasn't there any way to be sure? Why did I have come all this way . . ." She caught herself and smiled thinly. "I guess I should count my blessings. I'm better off than poor Angie."

"Poor Angie," Doc echoed sadly. How could they have known about Chris? The night Doc announced his conclusions about the children, there had been tears and harsh words, but no violence. But then there was Chris.

Chris, who had wanted a child more than any of them could have known. Who had suffered silently through Angie's first miscarriage, who hoped and prayed for the safe delivery of their second effort.

It had been an easy birth.

And the morning after Doc's speech, the three of them, Chris, Angie and the baby, were found in the quiet of their stone house, the life still ebbing from Chris' eyes and the gaps in his wrists.

"I'm sorry," he said over and over, shaking his head as if he were cold, his watery brown eyes dulling. "I just couldn't take it. I just . . . I just . . ." and he died. The three of them were buried in the cemetery outside of town, without coffins.

The town was different after the deaths, a stifling quiet hanging in the streets. Few colonists ate at the communal meals, choosing to take their suppers at home.

In an effort to bring everyone together, Jase encouraged them to come to town hall for Movie Night.

The film was "The Sound Of Music." The screen erupted with sound and color, dazzling green Alps and snow-crested mountains, happy song and the smiling faces of normal, healthy children.

Half the colonists walked out.

Most of the women took contraceptives now, except those who chose not to tamper with their estrogen balance. For these, Doc performed painless menstrual extractions bimonthly.

Nat and Elise insisted on having more children. Maybe the problem only affected the firstborn, they argued. Doc fought the idea at first. He found himself combatting Brew's sullen withdrawal, Nat's frantic insistence, and a core of hot anger in his own wife.

Earth could find a cure. It was possible. Then their grandchildren would be normal again, the heirs to a world.

He gave in.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

But all the children were the same. In the end, Nat alone had not given up. She had borne five children, and was carrying her sixth.

The message of failure was halfway to Earth, but any reply was still nineteen years away. Doc had adapted the habit of talking things over with Jase, hoping that he would catch some glimpse of a solution.

"I still think it's a disease," he told Jase, who had heard that before, but didn't mention it. The bay was quiet and their lines were still. They talked only during fishing trips. They didn't want the rest of the colony brooding any more than they already were. "A mutant virus. But I've been wondering, could the changes have screwed us up? A shorter day, a longer year, a little heavier gravity. Different air mixture. No common cold, no mosquito bites; even that could be the key."

On a night like this, in air this clear, you could even see starglades casting streaks across the water. A fish jumped far across the bay, and phosphorescence lit that patch of water for a moment. The Orion vehicle, mace-shaped, rose out of the west, past the blaze of the Pleiades. Roy would be rendezvousing with it now, preparing for tomorrow's Year Day celebration.

Jase seemed to need these trips even more than Doc. After the murders the life seemed to have gone out of him, only flashes of his personality coming through at tranquil times like these. He asked, "Are you going to have Jill breed mosquitos?"

". . . Yes."

"I think you're reaching. Weren't you looking at the genes in the cytoplasm?"

"Yeah. Elise's idea, and it was a good one. I'd forgotten there were genes outside the cell nucleus. They control the big things, you know: not the shape of your fingers, but how many you get, and where. But they're hard to find, Jase. And maybe we found some differences between our genes and the children's, but even the computer doesn't know what the difference *means*."

"Mosquitos." Jase shook his head. "We know there's a fish down that way. Shall we go after him?"

"We've got enough. Have to be home by morning. Year Day."

"What exactly are we celebrating *this* time?"

"Hell, you're the mayor. You think of something." Doc sulked, watching the water ripple around his float. "Jase, we can't give up—"

Jase's face was slack with horror, eyes cast up to the sky. Doc followed his gaze, to where a flaring light blossomed behind the Orion spacecraft.

"Oh my God," Jase rasped, "Roy's up there."

Throwing his bamboo pole in the water, Jase started the engine and raced for shore.

Doc studied the readouts carefully. "Mother of God," he whispered, "How many engines did he fire?"

"Six." Jill's eyes were glued to the screen, her voice flat. "If he was

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

abroad, he . . . well, there isn't much chance he survived the acceleration. Most of the equipment up there must be junk now."

"But what if he *did* survive? Is there a chance?"

"I don't know. Roy was getting set to beam the messages down, but said that he had an alarm to handle first. He went away for a while, and . . ." she seemed to search for words. She whispered, "Boom."

"If he was outside the ship, in one of the little rocket sleds, he could get to the shuttle vehicle."

Jase walked heavily into the lab.

"What about Cynnie? What did she say?" Doc asked quickly.

Jase's face was blank of emotion. "She talked to him before the . . . accident."

"And?"

"It's all she would say. I'm afraid she took it pretty bad. This was sort of the final straw." His eyes were hollow as he reminisced. "She was always a brave kid, you know? Anything I could do, she'd be right behind me, measuring up to big brother. There's just a limit, that's all. There's just a limit."

Doc's voice was firm, only a slight edge of unease breaking through his control. "I think we had better face it. Roy is dead. The Orion's ruined, and the shuttle-craft is gone anyway."

"He could be alive . . ." Jill ventured.

Doc tried to take the sting out of his voice, and was not entirely successful. "Where? On the ship, crushed to a paste? Not on the shuttle. It's tumbling further from the Orion every second. There's no one on it. In one of the rocket sleds?" His face softened, and they could see that he was afraid to have hope. "Yes. Maybe that. Maybe on one of the sleds."

They nodded to each other, and they and the other colonists spent long hours on the telescope hoping, and praying.

But there was nothing alive up there now. Ridgeback was entirely alone.

Cynnie never recovered. She would talk only to her brother, refusing even to see her child. She was morose and ate little, spending most of her time watching the sky with something like terrified awe in her eyes.

And one day, seven months after the accident, she walked into the woods and never returned.

Doc hadn't seen Jerry for three weeks.

The children lived in a community complex which had some of the aspects of a boarding school. The colonists took turns at nursing duty. Jill spent most of her time there since she and Greg were on the outs. Lately, Elise had taken up the habit too. Not that he blamed her; he couldn't have been very good company the last few months.

Parents took their children out to the T-shaped complex whenever they felt like it, so that some of the children had more freedom than others. But by and large they all were expected to

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

live there eventually.

Brew was coming out of the woods with a group of six children when Doc stumbled out into the sunlight and saw Jerry.

He wore a rough pair of coveralls that fit him well enough, but he would have looked ludicrous if there had been anything to laugh about. Soft brown fur covered every inch of him. As Doc appeared he turned his head with a bird-quick movement, saw his father, and scampered over. Jerry bounced into him, wrapped long arms tight about his rib cage and said, eagerly, "Daddy."

There was a slight pause.

"Hello, Jerry." Doc slowly bent to the ground, looking into his son's eyes.

"Daddy Doc, Daddy Doc," he chattered, smiling up at his father. His vocabulary was about fifteen words. Jerry was six years old and much too big for his age. His fingers were very long and strong, but his thumbs were small and short and inconsequential. Doc had seen him handle silverware without much trouble. His nose pugged, jaw massive with a receding chin. There were white markings in the fur around his eyes, accentuating the heavy supraorbital ridges, making the poor child look like—

The poor child. Doc snorted with self-contempt. *Listen to me. Why not my child?*

Because I'm ashamed. Because we lock our children away to ease the pain. Because they look like—

Doc gently disengaged Jerry's fingers from his shirt, turned and half-ran back to the ship. Shivering, he curled up on one of the cots and cursed himself to sleep.

Hours later he roused himself and, woozy with fatigue, he went looking for Jase. He found him on a work detail in the north fields, picking fruit.

"I'm not sure," he told Jase. "They're not old enough for me to be sure. But I want your opinion."

"Show me," said Jase, and followed him to the library.

The picture on the tape was an artist's rendering of Pithicanthropus erectus. He stood on a grassy knoll looking warily out at the viewer, his long-fingered hand clutching a sharp-edged throwing rock.

"I'll smack your head," said Jase.

"I'm wrong, then?"

"You're calling them apes!"

"I'm not. Read the copy. Pithicanthropus was a small-brained Pleistocene primate, thought to be a transitional stage between ape and man. You got that? Pith is also called Java Man."

Jase glared at the reader. "The markings are different. And there is the fur—"

"Forget 'em. They're nothing but guesswork. All the artist had to go on were crumbling bones and some broken rocks.

"Broken rocks?"

"Pith used to break rocks in half to get an edged weapon. It was about the extent of his tool-making ability. All

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

we know about what he looked like comes from fossilized bones—very much like the skeleton of a stoop shouldered man with foot trouble, topped with the skull of an ape with hydrocephalus."

"Very nice. Will Eve's children be fish?"

"I don't know, dammit. I don't know anything at all. Look, Pith isn't the only candidate for missing link. Homo Habilis looked a lot more like us and lived about two million years ago. Kenyapithicus Africanus resembled us less, but lived eighteen million years earlier. So I can't say what we've got here. God only knows what the next generation will be like. That depends on whether the children are moving backwards or maybe sideways. I don't know, Jase. I just don't *know*!" The last words were shrill, and Doc punctuated them by slamming his fist against a wire window screen. Then, because he could think of nothing more to say, he did it again. And again. And—

Jase caught his arm. Three knuckles were torn and bleeding. "Get some sleep," he said, eyes sad. "I'll have them send Earth a description of Eve the way she is now. She's oldest, and best developed. We'll send them all we have on her. It's all we can do."

Momentum and the thoroughness of their training had kept them going for eight years. Now the work of making a world slowed and stopped.

It didn't matter. The crops and the meat animals had no natural enemies on Ridgeback. Life spread along the continent like a green plague. Already it had touched some of the islands.

Doc was gathering fruit in the groves. It was a shady place, cool, quiet, and it made for a tranquil day's work. There was no set quota. You took home approximately a third of what you gathered. Sometimes he worked there, and sometimes he helped with the cattle, examining for health and pregnancy, or herding the animals with the nonlethal sonic stunners.

He wished that Elise were here with him, so they could laugh together, but that was growing infrequent now. She was growing more involved with the nursery, and he spent little of his time there.

Jill's voice hailed him from the bottom of the ladder. "Hey up there, Doc. How about a break?"

He grinned and climbed down, hauling a sack of oranges.

"Tired of spending the day reading, I guess," she said lightly. She offered him an apple. He polished it on his shirt and took a bite. "Just needed to talk to somebody."

"Kinda depressed?"

"Oh, I don't know. I guess it's just getting hard to cope with some of the problems."

"I guess there have been a few."

Jill gave a derisive chuckle. "I sure don't know Greg anymore. Ever since he set up the brewery and the distillery, he doesn't really want to see me at all."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Don't take it so hard," Doc comforted. "The strain is showing on all of us. Half the town does little more than read or play tapes or drink. Personally, I'd like to know who smuggled the hemp seeds on board."

Jill laughed, which he was glad for, then her face grew serious again. "You know, there'd probably be more trouble if we didn't need someone to look after the kids." She paused, looking up at Doc. "I spend a lot of my time there," she said unnecessarily.

"Why?" It was the first time he'd asked. They had left the groves and were heading back into town along the gravel road that Greg and Brew and the others had built in better days.

"We . . . I came here for a reason. To continue the human race, to cross a new frontier, one that my children could have a part in. Now, now that we know that the colony is doomed, there's just no motive to anything. No reason. I'm surprised that there isn't more drinking, more carousing and four-somes and divorces and everything else. Nothing seems to matter a whole lot. Nothing at all."

Doc took her by the shoulders and held her. Go on and cry, he silently said to her. God, I'm tired.

The children grew fast. At nine Eve reached puberty and seemed to shoot skyward. She grew more hair. She learned more words, but not many more. She spent much of her time in the trees in the children's complex. The older girls grew almost as fast as she did, and the boys.

Every Saturday Brew and Nat took some of the children walking. Sometimes they climbed the foothills at the base of the continental range; sometimes they wandered through the woods, spending most of their efforts keeping the kids from disappearing into the trees.

One Saturday they returned early, their faces frozen in anger. Eve and Jerry were missing. At first they refused to discuss it, but when Jase began organizing a search party, they talked.

They'd been ready to turn for home when Eve suddenly scampered into the trees. Jerry gave a whoop and followed her. Nat had left the others with Brew while she followed after the refugees.

It proved easy to find them, and easier still to determine what they were doing with each other when she came upon them.

Eve looked up at Nat, innocent eyes glazed with pleasure. Nat trembled for a moment, horrified, then drove them both away with a stick, screaming filth at them.

Over Nat's vehement objections and Brew's stoney refusal to join, Jase got his search party together and set off. They met the children coming home. By that time Nat had talked to the other mothers and fathers at the children's complex.

Jase called a meeting. There was no way to avoid it now, feelings were running too deep.

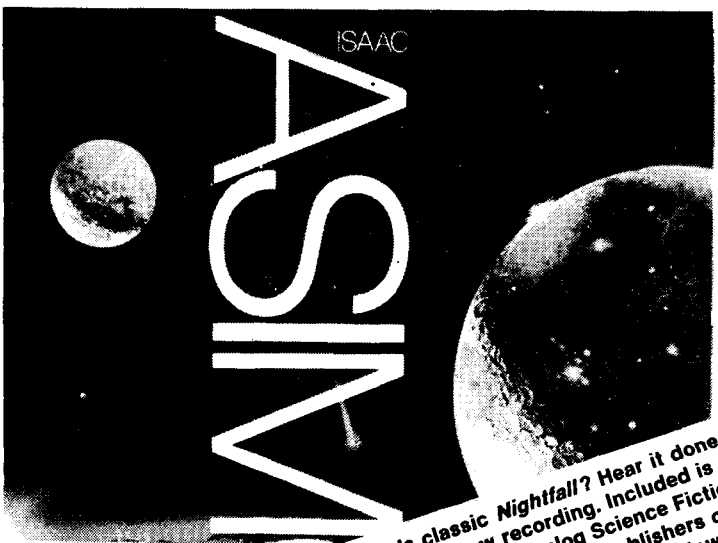
"We may as well decide now," he told them that night. "There's no

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

question of the children marrying. We could train them to mouth the words of any of our religions, but we couldn't expect them to understand what they were saying. So the question is, shall we let the children reproduce?"

He faced an embarrassed silence.

"There's no question of their being too young. In biological terms they aren't, or you could all go home. In our terms, they'll never be old enough. Anyone have anything to say?"



☐ **Remember reading Isaac Asimov's classic *Nightfall*? Hear it done now as a full-length dramatic presentation, in this new recording. Included is a dialogue between Isaac Asimov and Ben Bova, Editor of Analog Science Fiction/Science Fact Magazine. *Nightfall* is an exclusive offer from the publishers of Analog. ☐ For your copy of this 33⅓ LP stereo record, use the coupon below.**

ANALOG RECORDS • 350 Madison Avenue • New York, N.Y. 10017

Yes, I want to enjoy NIGHTFALL by ISAAC ASIMOV. Please send me _____ records at $6.95 each.

Name _____ (please print)

Address _____ Apt. No. _____

City _____ State _____ Zip _____

☐ My check/money order for $_____ is enclosed (payable to ANALOG RECORDS) (Add 55¢ per record to cover postage and handling)

Please charge my ☐ American Express ☐ VISA

No. _____

Exp. Date _____ Signature _____

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Let's have Doc's opinion," a hoarse voice called. There was a trickle of supportive applause.

Doc rose, feeling very heavy. "Fellow colonists . . ." The smile he was trying on for size didn't fit his face. He let it drop. There was a desperate compassion in his voice. "This world will never be habitable to mankind until we find out what went wrong here. I say let our children breed. Someday someone on Earth may find out how to cure what we've caught. Maybe he'll know how to let our descendants breed men again. Maybe this problem will only last a generation or two, then we'll get human babies again. If not, well, what have we lost? Who else is there to inherit Ridgeback?"

"No!" The sound was a tortured meld of hatred and venom. That was Nat, sunhaired loving mother of six, with her face a strained mask of frustration. "I didn't risk my life and leave my family and, and train for years and bleed and sweat and toil so my labor could fall to . . . to . . . a bunch of goddamned *monkeys*!"

Brew pulled her back to her seat, but by now the crowd was muttering and arguing to itself. The noise grew louder. There was shouting. The yelling, too, grew in intensity.

Jase shouted over the throng. "Let's talk this out peacefully!"

Brew was standing, screaming at the people who disagreed with him and Natalie. Now it was becoming a shoving match, and Brew was getting more furious.

Doc pushed his way into the crowd, hoping to reach Brew and calm him. The room was beginning to break down into tangled knots of angry, emotionally charged people.

He grabbed the big man's arm and tried to speak, but the Swede turned bright baleful eyes on him and swung a heavy fist.

Doc felt pain explode in his jaw and tasted blood. He fell to the ground and was helped up again, Brew standing over him challengingly. "Stay out of our lives, *Doctor*," he sneered, openly now. "You've never helped anything before. Don't try to start now."

He tried to speak but felt the pain, and knew his jaw was fractured. A soft hand took his arm and he turned to see Elise, big green eyes luminous with pity and fear. Without struggling, he allowed her to take him to the ship infirmary.

As they left the auditorium he could hear the shouting and struggling, Jase on the microphone trying to calm them, and the coldly murderous voices that screamed for "no monkey Grandchildren."

He tried to turn his head towards the distant sound of argument as Elise set the bone and injected quick-healing serums. She took his face and kissed him softly, with more affection than she had shown in months, and said, "They're afraid, Harry." Then kissed him again, and led him home.

Doc raged inwardly at his jaw that week. Its pain prevented him from joining in the debate which now flared in every corner of the colony.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Light images swam across his closed eyes as the sound of fists pounding against wood roused him from dreamless sleep. Doc threw on a robe and padded barefoot across the cool stone floor of his house, peering at the front door with distaste before opening it. Jase was there, and some of the others, sombre and implacable in the morning's cool light.

"We've decided, Doc," Jase said at last. Doc sensed what was coming. "The children are not to breed. I'm sorry, I know how you feel—" Doc grunted. How could Jase know how he felt when he wasn't sure himself? "We're going to have to ask you to perform the sterilizations . . ." Doc's hearing faded down to a low fuzz, and he barely heard the words. This is the way the world ends . . .

Jase looked at his friend, feeling the distance between them grow. "All right. We'll give you a week to change your mind. If not, Elise or Greg will have to do it." Without saying anything more they left.

Doc moped around that morning, even though Elise swore to him that she'd never do it. She fussed over him as they fixed breakfast in the kitchen. The gas stove burned methane reclaimed from waste products, the flame giving more heat control than the microwaves some of the others had. Normally Doc enjoyed scrambling eggs and wok-ing fresh slivered vegetables into crisp perfection, but nothing she said or did seemed to lift him out of his mood.

He ate lightly, then got dressed and left the house. Although she was concerned, Elise did not follow him.

He went out to the distillery, where Greg spent much of his time under the sun, drunk and playing at being happy. "Would you?" The pain still muffled Doc's words. "Would you sterilize them?"

Greg looked at him blearily, still hung over from the previous evening's alcoholic orgy. "You don't understand, man." There was a stirring sound from the sheltered bedroom behind the distillery, and a woman's waking groan. Doc knew it wasn't Jill. "You just don't understand."

Doc sat down, wishing he had the nerve to ask for a drink. "Maybe I don't. Do you?"

"No. No, I don't. So I'll follow the herd. I'm a builder. I build roads, and I build houses. I'll leave the moralizing to you big brains."

Doc tried to say something and found that no words would come. He needed something. He needed . . .

"Here, Doc. You know you want it." Greg handed him a cannister with a straw in it. "Best damn vodka in the world." He paused, and the slur dropped from his voice. "And this is the world, Doc. For us. For the rest of our lives. You've just got to learn to roll with it." He smiled again and mixed himself an evil-looking drink.

Greg's guest had evidently roused herself and dressed. Doc could hear her now, singing a snatch of song as she left. He didn't want to recognize the voice.

"Got any orange juice?" Doc mum-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

bled, after sipping the vodka.

Greg tossed him an orange. "A real man works for his pleasures."

Doc laughed and took another sip of the burning fluid. "Good lord. What *is* that mess you're drinking?"

"It's a Black Samurai. Sake and soy sauce."

Doc choked. "How can you drink that?"

"Variety, my friend. The stimulation of the bizarre."

Doc was silent for a long time. Senses swimming he watched the sun climb, feeling the warmth as morning melted into afternoon. He downed a slug of his third screwdriver and said irritably, "You can't do it, Greg. If you sterilize the children, it's over."

"So what? It's over anyway. If they wanna let a drunk slit the pee pees of their . . . shall we say atavistic progeny? Yeah, that sounds nice. Well, if they want me to do it, I guess I'll have to do it." He looked at Doc very carefully. "I do have my sense of civic duty. How about you, Doc?"

"I tried." He mumbled, feeling the liquor burning his throat, feeling the light-headedness exert its pull. "I tried. And I've failed."

"You've failed so far. What were your goals?"

"To keep—" he took a drink. Damn, that felt good. "To keep the colony healthy. That's what. It's a disaster. We're at each other's throats. We kill our babies—"

Doc lowered his head, unable to continue.

They were both silent, then Greg said, "If I've gotta do it, I will, Doc. If it's not me, it'll be someone else who reads a couple of medical texts and wants to play doctor. I'm sorry."

Doc sat, thinking. His hands were shaking. "I can't do that." He couldn't even feel the pain anymore.

"Then do what you gotta do, man," and Greg's voice was dead sober.

"Will you . . . can you help me?" Doc bit his lip. "This is *my* civic duty, you know?"

"Yea, I know." He shook his head. "I'm sorry. I wish I could help."

A few minutes passed, then Doc said drunkenly, "There's got to be a way. There just has to be."

"Wish I could help, Doc."

"I wish you could too." Doc said sincerely, then rose and staggered back to his house.

It rained the night he made his decision, one of the quick, hot rains that swept from the coast to the mountains in a thunderclap of fury. It would make a perfect cover.

He gathered his medical texts, a Bible and a few other books, regretting that most of the information available to him was electronically encoded. Doc took one of the silent stunners from the armory. The nonlethal weapons had only been used as livestock controllers. There had never been another need, until now. From the infirmary he took a portable medical kit, stocking it with extra bandages and medicine, then took it all to the big cargo flyer.

It was collapsible, with a fabric

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

fusilage held rigid by highly compressed air in fabric structural tubing. He put it in one of the soundless electric trucks and inflated it behind the children's complex.

There was plenty of room inside the fence for building and for a huge playground with fruit trees and all the immemorial toys of the very young. After the children had learned to operate a latch, Brew had made a lock for the gate and given everyone a key. Doc clicked it open and moved in.

He stayed in the shadows, creeping close to the main desk where Elise worked.

You can't follow where I must go, he thought regretfully. *You and I are the only fully trained medical personnel. You must stay with the others. I'm sorry, darling.*

And he stunned her to sleep silently, moving up to catch her head as it slumped to the table. For the last time, he gently kissed her mouth and her closed eyes.

The children were in the left wing—one room for each sex, with floors all mattress and no covers, because they could not be taught to use a bed. He sprayed the sound waves up and down the sleeping forms. The parabolic reflector leaked a little, so that his arm was numb to the elbow when he was finished. He shook his hand, trying to get some feeling back into it, then gave up and settled into the hard work of carrying the children to the flyer.

He hustled them through the warm rain, bending under their weight but still working swiftly. Doc arranged them on the fabric floor in positions that looked comfortable—the positions of sleeping men rather than sleeping animals. For some time he stood looking down at Jerry his son and at Lori his daughter, thinking things he could not afterwards remember.

He flew North. The flyer was slow and not soundless; it must have awakened people, but he'd have some time before anyone realized what had happened.

Where the forest had almost petered out he hovered down and landed gently enough that only a slumbering moan rose from the children. Good. He took half of them, including Jerry and Lori, and spread them out under the trees. After he had made sure that they had cover from the air he took the other packages, the books and the medical kit, and hid them under a bush a few yards away from the children.

He stole one last look at them, his heirs, small and defenseless, asleep. He could see Elise in them, in the color of their hair, as Elise could see him in their eyes and cheeks.

Kneading his shoulder, he hurried back to the ship. There was more for him to do.

Skipping the ship off again, he cruised thirty miles west, near the stark ridge of mountains, their sombre grey still broken only sparsely by patches of green. There he left the other seven children. Let the two groups develop separately, he thought.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

They wouldn't starve, and they wouldn't die of exposure, not with the pelts they had grown. Many would remain alive, and free. He hoped Jerry and Lori would be among them.

Doc lifted the flyer off and swept it out to the ocean. Only a quarter mile offshore were the first of the islands, lush now with primitive foliage. They spun beneath him, floating brownish-green upon a still blue sea.

Now he could feel his heartbeat, taste his fear. But there was resolve, too, more certain and calm than any he had known in his life.

He cut speed and locked the controls, setting the craft on a gradual decline. Shivering already, he pulled on his life jacket and walked to the emergency hatch, screwing it open quickly.

The wind whipped his face, the cutting edge of salt narrowing his eyes. Peering against the wall of air pressure he was able to see the island coming up on him now, looming close. The water was only a hundred feet below him, now eighty, sixty . . .

The rumbling of the shallow breakers joined with the tearing wind, and, fighting his fear, he waited until the last possible moment before hurling himself from the doorway.

He remembered falling.

He remembered hitting the water at awful speed, the spray ripping into him, the physical impact like the blow of a great hand. When his head broke surface Doc wheezed for air, swallowed salty liquid and thrashed for balance.

In the distance, he saw the flash of light, and a moment later the shattering roar as the flyer spent itself on the rocky shore.

Jase was tired. He was often tired lately, although he still managed to get his work done.

The fields had only recently become unkempt, as Marlow and Billie and Jill and the others grew more and more inclined to pick their vegetables from their backyard gardens.

So just he and a few more still rode out to the fields on the tractors, still kept close watch on the herds, still did the hand-pruning so necessary to keep the fruit trees healthy.

The children were of some help. Ten years ago a few of them had been captured around the foothill area. They had been sterilized, of course, and taught to weed, and carry firewood, and a few other simple tasks.

Jase leaned on his staff and watched the shaggy figures moving along the street, sweeping and cleaning.

He had grown old on this world, their Ridgeback. He regretted much that had happened here, especially that night thirty-some years before when Doc had taken the children.

Taken them—where? Some argued for the islands, some for the West side of the mountain range. Some believed that the children had died in the crash of the flyer. Jase had believed that, until the adult Piths were captured. Now, it was hard to say what happened.

It was growing chill now, the street-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

lights winking on to brighten the long shadows a setting Tau Ceti cast upon the ground. He drew his coat tighter across his shoulders and walked back to his house. It was a lonelier place to be since June had died, but it was still home.

Fumbling with the latch, he pushed the door open and reached around for the lightswitch. As it flicked on, he froze.

My God.

"Hello, Jase." The figure was tall and spare, clothes ragged, but greying hair and beard cut squarely. Three of the children were with him.

After all this time . . .

"Doc . . ." Jase said, still unbelieving. "It is you, isn't it?"

The bearded man smiled uncertainly, showing teeth that were white but chipped. "It's been a long time, Jase. A very long time."

The three Piths were quiet and alert, sniffing the air of this strange place.

"Are these—?"

"Yes. Jerry and Lori. And Eve. And a small addition." One of the three—God, could it be Eve? sniffed up to Jase. The soft golden fur on her face was tinged with grey, but she carried a young child at her breast.

Jerry stood tall for a preman, eyeing Jase warily. He carried a sharpened stick in one knobby hand.

Jase sat down, speechless. He looked up into the burning eyes of the man he had known thirty years before. "You're still officially under a death sentence, you know."

Doc nodded his head. "For kidnapping?"

"Murder. No one was sure what had happened to you, whether you or any of the children had survived."

Doc, too, sat down. For the first time the light in his eyes dimmed. "Yes. We survived. I swam to shore after crashing the flyer, and found the place where I had left the children." He thought for a moment, then asked quietly "How is Elise? And all the others?"

Jase said nothing, unable to raise his eyes from the floor. At last he beckoned a small voice. "She died three years ago, Doc. She was never the same after you left. She thought you were dead. That the children were dead. Couldn't you have at least told her about your plan? Or gotten her a message?"

Doc's fingers played absently with his beard as he shook his head. "I couldn't involve her. I couldn't. Could you . . . show me where she's buried, Jase?"

"Of course."

"What about the others?"

"Well, none of the people were the same after the children left. Some just seemed to lose purpose. Brew's dead. Greg drank himself under. Four of the others have died." Jase paused, thinking. "Do any of the others know you're here?"

"No. I slipped in just at dusk. I wasn't sure what kind of a reception I'd get."

"I'm still not sure." Jase hesitated. "Why did you do it?"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

The room was quiet, save for a scratching sound as Jerry fingered an ear. Fleas? Absurd. Jill had never uncrated them.

"I had to know, Jase," he said. There was no uncertainty in his voice. In fact, there was an imperious quality he had never had in the old days. "The question was: Would they breed true? Was the Pith effect only temporary?"

"Was it?"

"No. It persisted. I had to know if they were regressing or evolving, and they remained the same in subsequent generations, save for natural selection, and there isn't much of that."

Jase watched Lori, her stubby fingers untangling mats in her fur. Her huge brown eyes were alive and vital. She was a lovely creature, he decided. "Doc, what are the children?"

"What do you think?"

"You know what I think. An alien species wants our worlds. In a hundred years they'll land and take them. What they'll do with the children is anybody's guess. I—" He couldn't bring himself to look at Eve. "I wish you'd sterilized them, Doc."

"Maybe you do, Jase. But, you see, I don't believe in your aliens."

Jase's breath froze in his throat.

"They might want our world," said Doc, "but why would they want our life forms? Everything but Man is spreading like a plague of locusts. If someone wants Ridgeback, why haven't they done something about it? By the time they land, terrestrial life will have an unstoppable foothold. Look at all the thousands of years we've been trying to stamp out just one life form, the influenza viruses.

"No, I've got another idea. Do you know what a locust is?"

"I know what they are. I've never seen one."

"As individuals they're something like a short grasshopper. As individuals, they hide or sleep in the daytime and come out at night. In open country you can hear them chirping after dusk, but otherwise nobody notices them. But they're out there, eating and breeding and breeding and eating, getting more numerous over a period of years, until one day there are too many for the environment to produce enough food.

"Then comes the change. On Earth it hasn't happened in a long time because they aren't allowed to get that numerous. But it used to be that when there were enough of them, they'd grow bigger and darker and more aggressive. They'd come out in the daytime. They'd eat everything in sight, and when all the food was gone, and when there were enough of them, they'd suddenly take off all at once.

"That's when you'd get your plague of locusts. They'd drop from the air in a cloud thick enough and broad enough to darken the sky, and when they landed in a farmer's field he could kiss his crops goodbye. They'd raze it to the soil, then take off again, leaving nothing."

Jase took off his glasses and wiped them. "I don't see what it is you're getting at."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Why do they do it? Why were locusts built that way?"

"Evolution, I guess. After the big flight they'd be spread over a lot of territory. I'd say they'd have a much bigger potential food supply."

"Right. Now consider this. Take a biped that's man shaped, enough so to use a tool, but without intelligence. Plant him on a world and watch him grow. Say he's adaptable; say he eventually spread over most of the fertile land masses of the planet. Now what?

"Now an actual physical change takes place. The brain expands. The body hair drops away. Evolution had adapted him to his climate, but that was when he had hair. Now he's got to use his intelligence to keep from freezing to death. He'll discover fire. He'll move out into areas he couldn't live in before. Eventually he'll cover the whole planet, and he'll build spacecraft and head for the stars."

Jase shook his head. "*But why would they change back,* Doc?"

"Something in the genes, maybe. Something that didn't mutate."

"Not *how* Doc. We know it's possible. *Why*?"

"We're going back to being grasshoppers. Maybe we've reached our evolutionary peak. Natural selection stops when we start protecting the weak ones, instead of allowing those with defective genes to die a natural death."

He paused, smiling. "I mean, look at us, Jase. You walk with a cane now. I haven't been able to read for five years, my eyes have weakened so. And we were the best Earth had to offer; the best minds, the finest bodies. Chris only squeeked by with his glasses because he was such a damn good meteorologist."

Jase's face held a flash of long-forgotten pain. "And I guess they still didn't choose carefully enough."

"No," Doc agreed soberly. "They didn't. On Earth we protected the sick, allowed them to breed, instead of letting them die . . . with pacemakers, with insulin, artificial kidneys and plastic hip joints and trusses. The mentally ill and retarded fought in the courts for the right to reproduce. Okay, it's humane. Nature isn't humane. The infirm will do their job by dying, and no morality or humane court rulings or medical advances will change the natural course of things for a long, long time."

"How long?"

"I don't know how stable they are. It could be millions of years, or . . .?" Doc shrugged. "We've changed the course of our own development. Perhaps a simpler creature is needed to colonize a world. Something that has no choice but to change or die. Jase, remember the Cold War?"

"I read about it."

"And the Belt Embargo? Remember diseromide, and smog, and the spray-can thing, and the day the fusion seawater distillery at San Francisco went up and took the Bay area with it, and four states had to have their water flown in for a month?"

"So?"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"A dozen times we could have wiped out all life on Earth. As soon as we've used our intelligence to build spacecraft and seed another world, intelligence becomes a liability. Some old anthropologist even had a theory that a species needs abstract intelligence before it can prey on its own kind. The development of fire gave Man time to sit back and dream up ways to take things he hadn't earned. You know how gentle the children are, and you can remember how the carefully chosen citizens of Ridgeback acted the night we voted on the children's right to reproduce."

"So you gave that to them, Doc. They are reproducing. And when we're gone they'll spread all over the world. But are they *human*?"

Doc pondered, wondering what to say. For many years he had talked only to the children. The children never interrupted, never disagreed . . . "I had to know that too. Yes. They're human."

Jase looked closely at the man he had called friend so many years ago. Doc was so sure. He didn't discuss; he lectured. Jase felt an alienness in him that was deeper than the mere passage of time.

"Are you going to stay here now?"

"I don't know. The children don't need me any more, though they've treated me like a god. I can't pass anything on to them. I think our culture has to die before theirs can grow."

Jase fidgitted, uncomfortable. "Doc. Something I've got to tell you. I haven't told anyone. It's thirty years now, and nobody knows but me."

Doc frowned. "Go on."

"Remember the day Roy died? Something in the Orion blew all the motors at once? Well, he talked to Cynnie first. And she talked to me, before *she* disappeared. Doc, he got a laser message from Earth, and he knew he couldn't ever send it down. It would have destroyed us. So he blew the motors."

Doc waited, listening intently.

"It seems that every child being born on Earth nowadays bears an uncanny resemblance to Pithicanthropus erectus. They were begging us to make the Ridgeback colony work. Because Earth is doomed."

"I'm glad nobody knew that."

Jase nodded. "If intelligence is bad for us, it's bad for Earth. They've fired their starships. Now they're ready for another cycle."

"Most of them'll die. They're too crowded."

"Some will survive. If not there, then, thanks to you, here." He smiled. A touch of the old Jase in his eyes. "They'll *have* to become men, you know."

"Why do you put it like that?"

"Because Jill uncrated the wolves, to help thin out the herds."

"They'll cull the children, too," Doc nodded. "I couldn't help them become men, but I think that will do it. They will have to band together, and find tools, and fire." His voice took on a dreamy quality. "Eventually, the wolves will come out of the darkness

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

to join them at their campfires, and Man will have dogs again." He smiled. "I hope they don't overbreed them like we did on Earth. I doubt if chihuahuas have ever forgotten us for what we did to them."

"Doc," Jase said, urgently, "will you trust me? Will you wait for a minute while I leave? I . . . I want to try something. If you decide to go there may never be another chance."

Doc looked at him, mystified. "Alright, I'll wait."

Jase limped out of the door. Doc sat, watching his charges, proud of their alertness and flexibility, their potential for growth in the new land.

There was a creaking as the door swung open.

The woman's hair had been blond, once. Now it was white, heavy wrinkles around her eyes and mouth, years of hardship and disappointment souring what had once been beauty.

She blinked, at first seeing only Doc.

"Hello, Nat," he said to her.

She frowned. "What . . .?" Then she saw Eve.

Their eyes locked, and Nat would have drawn back save for Jase's insistent hand at her back.

Eve drew close, peering into her mother's face as if trying to remember her.

The old woman stuttered, then said, "Eve?" The Pith cocked her head and came closer, touching her mother's hand. Nat pulled it back, eyes wide.

Eve cooed, smiling, holding her baby out to Nat.

At first she flinched, then looked at the child, so much like Eve had been, so much . . . and slowly, without words or visible emotion, she took the child from Eve and cradled it, held it, and began to tremble. Her hand stretched out helplessly, and Eve came closer, took her mother's hand and the three of them, mother, child and grandchild, children of different worlds, held each other. Nat cried for the pain that had driven them apart, the love that had brought them together.

Doc stood at the edge of the woods, looking back at the colonists who waved to them, asking for a swift return.

Perhaps so. Perhaps they could, now. Enough time had passed that understanding was a thing to be sought rather than avoided. And he missed the company of his own kind.

No, he corrected himself, the children *were* his kind. As he had told Jase, without explaining, he knew that they were human. He had tested it the only way he could, by the only means available.

Eve walked beside him, her hand seeking his. "Doc," she cooed, her birdlike singsong voice loving. He gently took their child from her arms, kissing it.

At over sixty years of age, it felt odd to be a new father, but if his lover had her way, as she usually did, his strange family might grow larger still.

Together, the five of them headed into the forest, and home. ■

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

the reference library

SPIDER ROBINSON

(NOTE: This may be a first: a serialized book review. There was just too much for one issue, so we're running it in two. The first half, last month, dealt with several reissues; this month Spider goes on to several new books. For those readers who don't have last month's column handy, we list again those books which are covered in this month's column.)

THE NEW STUFF

ECOTOPIA, Ernest Callenbach, Banyan Tree, 168 pp., $2.95 Bantam, 214 pp., $1.95

ALIEN EMBASSY, Ian Watson, Ace, 306 pp., $1.75

MIRACLE VISITORS, Ian Watson, Ace, 239 pp.

THE SCIENTIST, John C. Lilly, M.D., Lippincott, 210 pp., $8.95

CATACOMB YEARS, Michael Bishop, Berkley, 396 pp.

SIGHT OF PROTEUS, Charles Sheffield, Ace, 282 pp., $1.75

A DIFFERENT LIGHT, Elizabeth A. Lynn, Berkley, 183 pp., $1.75

The oldest book in the new pile, **ECOTOPIA,** is an unabashed utopia novel. It is an attempt to portray what its author believes is a saner society, as seen through the eyes of a citizen of our own.

There is some question whether it is a fantasy or an SF novel or what. The current Bantam paperback opts for "or what"—it is not labeled SF *or* fantasy (as the publisher customarily does with those genres), and is apparently going to be marketed as a "straight" paperback. On the other hand, they sent me a review copy. The back cover of the original Banyan Tree Books edition (a $2.95 trade paperback which became something of an underground cult classic in California after its 1975 publication) says it is *not* SF; because "it makes no far-out assumptions about exotic technology or changes in human nature." Allowing that definition to pass unchallenged, with some difficulty, I still think the copywriter is talking through his hat—because the only thing that could make Ernest Callenbach's Ecotopia even remotely possible, let alone plausible enough to consider speculatively, would be a major and dramatic change in human nature. For his hypothetical society to work, a vast majority of its citizens must have good will and good brains, and furthermore employ both practically all

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

the time. I submit that this is unlikely enough to make *Ecotopia* an SF novel—*but*, I suggest that if you find it flat-out impossible, if you believe that people cannot and will never smarten up, then you ought to avoid this book. You'll go mad picking flaws, to prove to yourself that them grapes is sour anyway.

The hypothetical society is northern California, Oregon and Washington, which banded together and seceded from the Union in 1980. (How did Ecotopia succeed in winning its Civil War? Unabashed nuclear blackmail, although they also won a brief Helicopter War that never made the papers on either side.) They thereupon sealed their border tighter than East Berlin, and proceeded to set up an independent, self-sufficient, enlightened society founded on biological principles of harmony with the environment, a "female-dominated stable-state government," with collective ownership of all the farms and factories. They change virtually every single tenet of their culture and its way of looking at the world, apparently simultaneously overnight. Nineteen years later it is working perfectly. No cars, nuclear plants, sexual frustration, hunger, labor trouble, race prejudice or overpopulation. They threw out all their capitalist wolves on Independence Day, and have grown no more. But the outside world knows nothing of conditions inside Ecotopia (apparently all the Ecotopians who had relatives and friends outside the border abandoned them utterly and forever). So they allow in one journalist, to report to the rest of America on their new lifestyle. The U.S. government *must* know, via CIA etc., that Ecotopia makes the U.S. look like an insane hellhole, yet the reporter they select, William Weston, is intelligent, honest, forthright and decent.

It is essential that you understand that the *premise* of this book *is* flat out impossible, OK?

We then alternate between the daily columns Weston dispatches from Ecotopia, and the entries he makes in his diary between times. Callenbach, author of *Living Poor With Style* (something I've been working at all my life), has thought out his Ecotopia in incredible interlocking detail; virtually every imaginable aspect of Ecotopian society is covered by a column, and the interspersed diary segments make it all come alive. It is *neither* a series of lectures nor a true novel; it is something of both. The story is not just tacked on to make the lectures palatable, or if so it is done quite well: the growing disparity of Weston's for-public-print persona and his private opinions is wonderfully handled. Sure, it's predictable as hell that he'll be converted by the end of the book—but I believed his conversion all the same.

And the amazing thing is that I kinda half-believed Callenbach's Ecotopia. Not that simply or painlessly achieved, and no way could it happen by 1999, but it certainly does seem like something to shoot for. I hasten to assure Analog readers that this ecological paradise is *not* antitechnology or antiscience—quite the contrary. A society seeking to keep a large population alive and comfortable without waste, exploitation, pollution, fossil fuels, internal combustion or nuclear power must rely heavily on ingenious technology (chiefly, but not exclusively, biotechnology). All the Ecotopians

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

demand is that the technology be used sanely, rather than exploited for short-term personal profit at the ultimate expense of everyone. The Ecotopian government funds research sufficiently that researchers don't have to teach if they don't want to, and it is required by law to devote a portion of its annual budget to "high-risk" projects, that is, pure research with little or no commercial or practical application (what I mean, these people are wise). It's not a bad little utopia, reminding me in some ways of the ones Sturgeon has created, only infinitely more detailed. I liked a lot of Ecotopian values . . . their deep reverence for trees, for instance, and their insistence on decentralization and personalization wherever possible. I disliked some, i.e., this business of whether or not a woman chooses to conceive a child with her lover being none of his goddam business, for instance. Would an Ecotopian woman choose to get involved with a man who refused to tell her if he'd had a vasectomy or not? I'm sorry, this is where I part company with radical feminism: I believe there should be equal rights for responsible fathers.

Never mind. You will like some parts, hate some other parts—and in the end be enormously stimulated in your thinking. These are the kinds of lines we should all be thinking along: setting up hypothetical *better* ways of doing things, and then trying to poke holes in them.

Because you know? it's awful easy to poke holes in the way we do things now.

Next we come to two Ian Watson novels. Both of them are as ambitious as hell, and neither one quite succeeds, but both come very damn close.

New ideas, startling new concepts, are Watson's greatest strength, and he seems to have them in abundant supply. More than anyone else I've read this season (save John Varley) he takes SF into new directions. The first one I read, **ALIEN EMBASSY**, takes place in the 22nd Century, in which time world peace has been achieved through the establishment of a world society based on the principles of Tantric Yoga. Not quite as implausible as it sounds: first, Western philosophy kind of went into disrepute with the collapse of civilization in the *previous* century; and second, it seems that the adepts of Kundalini have succeeded in establishing telepathic contact with three different alien cultures, an enormous help in rebuilding after the Collapse. One human in a thousand perhaps has the ability to enter yogic trance deep enough to enter the astral plane and travel light years, and there are not a whole lot of thousands *left*. Consequently the whole world educational system has been set up as a kind of farm-team system to find and develop and train good telepaths by teaching yogic principles and disciplines. Our protagonist, Lila, is a promising rookie.

Make no mistake: Watson is no bleary-eyed hippie who got his knowledge of Tantra and Kundalini from two Alan Watts books, a credit-and-a-half course at State and a Ram Dass lecture. He has obviously researched his subject in great depth and detail and built a religion into a world nearly as well (if not as colorfully) as Roger Zelazny did in *Lord of Light*.

Embassy is unlike *Lord of Light* in

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

that it is not an engaging, exciting read; the strongest emotion in the first half of the book is pleasant surprise, and (although *we* are tipped off that there's More Here Than Meets The Third Eye in a prefatory chapter) the most ominous cloud visible on narrator Lila's horizon is the chance of accidental pregnancy. (You *did* know that the vehicle of Tantric meditation is sexual intercourse, didn't you? And no, even that doesn't add any excitement; in a commendable effort not to be exploitive and crass, Watson manages to make coitus as erotic as isometric exercises.) You keep reading for the intellectual rewards, for the pleasure of following the workings of the ideas, or not at all.

Halfway through, just as I was beginning to doze off, that ticking bomb planted in the preface went off, with a surprise revelation so interesting that I don't want to spoil it by giving it away here. The second half of the book was enormously more provocative and original than the first half, and I have to say Watson's ending, odd as it is, chopped me up. One of the most original and unusual SF novels of the year.

And that goes double for Watson's other new paperback, MIRACLE VISITORS. Here what he is writing about, essentially, is consciousness itself, and reality itself, and the interface between them. This is extremely slippery stuff; be warned in advance that this book is *hard* to read. Far from a crowded bus, you want a quiet living room, a good light, and several hours' uninterrupted quiet. Which I certainly didn't get; I was groggy when I finished it, and still find some difficulty in thinking about it. But it was worth the effort, and I'll probably read it a couple more times.

Essentially Watson attempts to wield Occam's Very Biggest Razor, to come up with a new theory of reality that explains many things now considered inexplicable ("UFO" phenomena, Close Encounter reports of all kinds, thousands of documented Charles Fort-type events that positively couldn't have happened but unquestionably did) *and*—this is an important "and"—one that will satisfy a thinking person, that might convince a hard-headed skeptical SF fan. Whether he has succeeded or not is up to you; I report myself dubious, confused, mightily intrigued, and enormously impressed. Watson is groping along the edge of something important, here, and knows it: essentially he is like a fish trying to write a science fiction novel for his fellows about the unseen but inferrable air-breathers. Daring, heady stuff.

It has problems as a story. Some marvelous comic touches worthy of Sheckley fall flat because of the essential wooden-ness of Watson's characters. I don't mean they're cardboard: they are convincingly-drawn wooden people. For instance, there's a marvelous bit of business where all three central characters are given a ride to the Moon in a Ford Thunderbird with Wyoming plates—and not one of 'em had enough sense of humor to be as *delighted* with the damned thing as I was. Surprised, yes, intrigued, yes—but not delighted. Again the ideas seem more interesting than the people. And to my mind it came apart some at the ending: I didn't feel enough sense of resolution. (A flaw that you rarely if ever saw in 50s or 60s SF—if they

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

didn't have a socko ending, they didn't start writing.)

Nonetheless, an extraordinary and seminal book, not to be missed by the thoughtful, and not in a million years to be taken for light entertainment.

I'd like to throw in a rather astonishing sort-of science fact book here: the autobiography of John Lilly, the man known to most of you as that dolphin chap. He has written four successful books about his research with dolphins, and his contention that dolphin intelligence is equal to or greater than human has already passed into folklore as fact, and generated several fine SF stories by Zelazny, Dickson, and others.

His latest book, THE SCIENTIST, is subtitled, "A Novel Autobiography." You can say that again. It is hard to visualize the enormous courage it must have taken Lilly to write this book, to submit it for publication, and to refrain from changing his mind during the endless months it takes any manuscript to become a book. Because what it is, is the story of how Lilly went insane and became a drug addict.

It begins like a science fiction novel, like, it must be added, a very bad science fiction novel: "The Starmaker stirred, awoke from his/her Rest in the Void." Lilly sketches the ensuing history of the Universe (starting well before the Big Bang) and traces the genealogy of the Being that one day, for reasons of its own, chooses to leave "HYPERSPACE" and become John Lilly. He describes his own birth and infancy in the third person, and he mentions that until he was weaned, he was able to leave his body and telepathically visit "his Teachers, the two Guardians." This is the first ten pages.

The rest of the first third of the book is Lilly, as a "young scientist," recounting his traumatic childhood and adolescence to a psychiatrist. He begins in the first person, but then one day he opens a session by announcing, "I am an extraterrestrial Being supervising my agent John," (the shrink nods), and thereafter pretty much sticks with third person.

He terminates analysis at about the time he figures out what he wants to do with his life, and the next third of the book is fascinating. Because what Lilly decides to do with his life is study the most fascinating subject of all: the relationship of brain to mind. At first this leads him into experiments with hypothalamus stimulation—some of the most explosive stuff of our time—but he abandons this line when the FBI and CIA begin showing an alarming amount of interest. He decides to map the mind rather than the brain. He begins his work with dolphins. He designs and builds the world's first isolation tank—an artificial environment providing zero sensory stimulus (essentially a soundproof womb in which the subject half-floats in darkness)—and begins spending increasing amounts of time there. This is by far the most productive and creative period of Lilly's career. Then he begins having extremely real-seeming hallucinations in the tank, in which he seems to overhear three extraterrestrial Beings discussing his "progress." Eventually he comes to "oscillate between two belief systems," one in which he knows them to be hallucinations, and one in which he's not sure.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

As this third of the book draws to a close, he gets the idea that maybe he could get more insight by injecting one hundred mikes of Sandoz acid into his thigh (!) before getting into the tank . . . (The Freudian imagery of *pricking yourself in the thigh* before climbing into the womb seems to escape Lilly.)

The last third of the book is an extraordinary, harrowing, brutally honest account of how John Lilly flipped out. Increasingly heavy LSD use, then someone turns him on to the newly discovered "Vitamin K," to which he speedily becomes utterly addicted (K he injects into his belly). He is vouchsafed a vision of a deadly galactic conflict between protoplasmic intelligence and "solid-state" or machine intelligence, which of course must be inimical to protoplasm since protoplasm is water-based and water makes computers rust and short. (Shades of Fred Saberhagen's Berserker stories—some of which, by the way, have just been reprinted.) Lilly comes to believe that our computers are in communication with extraterrestrial solid-state intelligences, and that is why we go around killing whales and dolphins and each other. He begins regularly listening in on the conversations of his three extraterrestrial Guardians, and learns that they plan to use him to help raise the "evolutionary speed limit" of the human race, employing "cosmic coincidence control" for this purpose.

Shortly progressive K addiction takes its toll. Lilly collapses, nearly dies, agrees to give up K, continues using K, is committed, swears to give up K and is released, continues using K, comes to believe that his is a being from the year 3001. Then, under the influence, he falls off a bicycle, breaking his collarbone, scapula and three ribs and puncturing a lung. He kicks K and writes *The Scientist*, admitting at the end that he is still not sure what was and wasn't hallucination.

Why I'm spending so much time on this strange book is that Lilly's extraterrestrial hallucinations sound *precisely* like some of the stuff Ian Watson was talking about in *Miracle Visitors*. Watson's theory was that "UFO phenomena" and the like are expressions of a deep aspect of consciousness itself, manifestations by which consciousness is trying to stimulate itself to evolve to a higher plane—that this accounts both for the fact that all those alien-visitation and UFO stories sound alike, and for the fact that none of them have a shred of even Looking Glass logic or consistency to them. The most startling thing about Lilly's three extraterrestrial Beings is that nothing whatsoever about their plans or natures is plausible. They are superpowerful and all-knowing, yet they spend hours bringing each other up to date, and do not seem to know when Lilly is eavesdropping, and their plan seems aimless. It is striking that Lilly, a trained scientist from Cal Tech, came to believe in a set of aliens so implausible that they would not convince even the most credible SF fan. It is striking that flying saucers come millions of kilometers only to bring incomprehensible revelations. Our racial unconscious is running a high fever these days, it seems.

Michael Bishop's **CATACOMB YEARS** is a "novel" cobbled together out of a series of novellas and novelettes. I'm

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

not about to say this can't be done; Gregory Benford's *In The Ocean Of Night* and Joe Haldeman's *The Forever War* come to mind at once. But I think Bishop failed miserably; *Ecotopia* had more structure and focus than this 400 page epic, and John Lilly's book had more plot.

This is a shame. Individually the stories range from poor to excellent, the best of them being the portion that, under the title "The Samurai And The Willows," was a Hugo and Nebula Finalist in 1977. They have heart and texture. But when you put them all together, they are connected only by a few plot-threads that turn out to be largely nonessential. There is no human protagonist who persists throughout the book, although a minor character in the second chapter becomes the protagonist of the last. By default, the hero of the book is the setting: the domed-over, sealed-off, utterly self-contained city of Atlanta, Georgia. The book begins with the construction of the Atlanta Dome in 2004, and ends at the moment it is torn down some seventy-five years later. We are given to understand that most of the major cities in America domed themselves over at about the same time, leaving the rest of the world to go hang. Mass cultural omphaloskepsis.

The thing is, if four hundred pages turns out to be essentially about a domed city, it behooves that domed city to be at least remotely possible, at least vaguely plausible, at least perfunctorily thought out. Atlanta is not. Bishop never satisfactorily explains a) why *or* how the dome was financed and built, b) why everybody who possibly could migrated inside the dome before it was sealed, c) how the city could possibly acquire sufficient food, pure water, clean air, raw materials, *replacement parts* without any access to the outside world, d) where they got

in times to come

● July's cover illustrates not a story from that issue, but a story—as yet unfinished—from history. July, as you no doubt remember, marks the tenth anniversary of Man's arrival on the Moon. Robert T. McCall's cover painting commemorates that event, as do several features between the covers, including the editorial, a special poem, and a fact article by William Sims Bainbridge on "American Enthusiasm for Spaceflight." Ultimately, Apollo itself should prove less important than what grows out of it, and Bainbridge's article examines the climate of opinion in which that growth will have to take place.

Michael McCollum leads off the fiction with "Beer Run," a new novelette quite different in subject and flavor from his last in these pages. I won't try to summarize it; suffice it to say that the title describes what Duncan MacElroy *thought* he was getting into. What he actually got into was something much bigger. . . .

We'll also have Part 2 of William E. Cochrane's *Class Six Climb,* wherein the action moves onto the Giant Tree of Kyle Murre, plus several short stories by a diversity of authors, *The Alternate View,* and the rest of the usual departments.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

their power, e) where they disposed of their personal and industrial waste, f) why in the name of God anyone would want to stay inside there for life, and g) what the hell became of exurban America while all this was going on. (I figured out for myself why the Chinese didn't take occasion to nuke all those ostrich cities—they have always respected the insane.)

Plainly these questions are irrelevant to Bishop's purpose. Plainly he intended the Domed City to be a metaphor for something or other, a symbol of how's your father, and it probably worked just fine in some of those individual novelettes, where an emotionally involving story made you overlook a shaky premise. But the "novel" has no emotional continuity—no continuity at all except the metaphor, which collapses under the weight of 400 pages.

The "bridge" sections, hasty capsule descriptions of transitional happenings between stories, are remarkably awkward, at times lurching. There are a few marvelous stories in this book, and one superb one, but they are ruined by a setting which exposes their worst weaknesses.

Two first novels to leave you with, both quite good in different ways. **SIGHT OF PROTEUS** comes from Charles Sheffield, Masters in Math, Doctorate in Theoretical Physics, First VP of the American Astronautical Society. Form-change—altering the human body for various tasks and purposes—is an SF standard, used by Zelazny, Laumer and many others. Sheffield is the first I've seen to realize that the period *immediately after* feasible form-change is developed would be a mighty interesting period. His novel is an exciting, fast-paced read, reminding me in many ways of Larry Niven. Sheffield's only major problem here is a tendency to drown in his own inventiveness—he fires off so many novel concepts and nimble complications that the plot begins to get a bit unwieldy and the characterization starts to suffer from all the long expository speeches. The book is a little too busy for my taste, but a strikingly good first novel.

The plot of Elizabeth A. Lynn's debut, **A DIFFERENT LIGHT**, is much simpler, perhaps a bit too much. I don't think she ever actually *plotted* it, it feels as though she made it up as she went along. Consequently it's unbalanced as a book, and it ends either twenty pages too late or two hundred too soon depending on how you look at it. But I don't care, I loved it. Her characterization is mavelous throughout, her prose is both sinewy and sinuous, and her insights are often profound. I cared about her people, and was well entertained by their adventures. Lynn's protagonist is a successful artist whose lover has gone off to deep space—while he has a variant of cancer that will kill him in a year if he enters hyperspace. Lovely antinomy.

Oh thank God—I'm out of space: I don't have room to put a summatory analysis! Comparison of The New stuff with The Old is left as an exercise for the reader.

Have we accomplished anything? Yes. We've proven once again that the world is divided into two kinds of people: those who believe that there are two kinds of people (or two kinds of SF) and those who know better. ■

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

brass tacks

Dear Mr. Schmidt:

I was very much impressed by the guest editorial, "The First Space War" by Donald Kingsbury, in the December issue. Too often it has been assumed by science fiction writers that nobody wants war; and that if material needs could be satisfied by improvements in technology, war could become a thing of the past. But thousands of years of human history should lead one to the conclusion that science cannot overcome human nature. As long as a nation can profit from war (and not necessarily economically, but in terms of an increase in power), warfare will be an integral part of human behavior.

There was one point in the editorial, though, that I would take issue with. Although the Russians may have believed that they had an interest in preventing the completion of a rocket range in Zaire, it is doubtful that this was a major motive for Russian intervention in Zaire. The Soviet Union has a vested interest in the overthrow of pro-Western governments (just as the United States perceives its interests to be best served by disrupting pro-Soviet governments). Had OTRAG not considered building a rocket range in Zaire, the Soviet government still would have perceived the disruption of Zaire's economy and control of the Angolan revolution to be in its national interest.

When their survival is at stake, nations cannot and will not act morally (morality defined here as self-sacrifice). They will try to increase their power, or at the very least, maintain power. And if space technology can be used to promote that end, it will.

ALAN RITTER

2 Brixton Ave.
Plainview, N.Y.

Dear Ben Bova:

Enclosed you will find the result of the poll I requested in February's "Brass Tacks" column. I hope it, plus the other articles will interest you. You may publish whatever portion of the survey that interests you. We would appreciate it if you would inform your readers that they *may* find the entire October issue (Voice of Youth Advocates) in their public libraries. We're in our first year, so we

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

don't cover the universe, but there is always the chance. The one thing we can't do is provide copies of the October issue—it is almost out of print at this moment and will be, certainly, by the time it should appear in Analog.

DOROTHY M. BRODERICK
10 Landing Lane
New Brunswick, NJ 08901

The "Brass Tacks" column in the February 1978 issue of Analog carried a letter in which I asked SF readers to nominate ten novels that they would recommend for basically literate young people aged 14-17. What I had in mind initially was to compare the titles SF fans would recommend with those taught in high school SF classes, but I was unable to locate enough high school bibliographies to pursue that approach.

No matter. It has turned out to be a fascinating experience. I received 125 answers from Australia, New Zealand, overseas-based armed forces personnel, four Provinces in Canada, and almost every state in the union. The one unequivocable statement that can be made about SF fans is "Ask and ye shall receive."

If there had been no agreement among the respondents, I would have ended up with 1250 titles; if there had been total agreement, I would have had ten. As it was, a total of 375 individual titles were nominated, representing 160 authors. The major results appear below, but I want to talk a bit about what the numerical listings do not show.

First, the chart does not adequately reflect how completely Robert Heinlein dominates the field. He received 139 votes for 27 separate titles. He'd have had more votes except some writers said things like, "There is no Heinlein on this list because some how or other, everyone seems to find him on their own." Asimov received 84 votes for ten titles; Arthur Clarke 65 votes for nine titles. Despite all the talk about new writers displacing the "big three" it is clear that SF fans still find them the best way to introduce new readers to the genre.

Second, the twelve "All Stars" represent a very impressive list and confirm Neil Barron's expertise in recommending titles for first purchase in *Anatomy of Wonder*, ten of the twelve earning that rating from Barron. Only *The Mote in God's Eye* and *Forever War* were not first purchase choices.

Third, the absence of Andre Norton from the finalists is caused by the inability of fans to agree on which Norton they would recommend. She received a total of 25 votes for 18 different titles. As the *Science Fiction Quiz Book* points out, Andre Norton has written at least one book with a title beginning with every letter in the alphabet. Another quality author suffering the same fate was Poul Anderson who received 26 votes for 15 different titles. Being prolific does have its drawbacks in this kind of poll.

Of the 375 titles nominated by the SF readers of Analog, 57 received five or more votes. It is those 57 that are printed below and a library that owned all of these titles has a good basis for building a decent SF collection.

We have provided a publisher for the four titles not found in Neil Barron's *Anatomy of Wonder* (Bowker, 1976). There are very few volumes that we feel *every* library should own, but Barron's is one of them. It is invaluable as a guide to science fiction and we feel libraries should own both circulating as well as reference copies of it.

The first twelve titles are in order of their votes. After that, each group is alphabetical by author within the number-of-votes category.

THE ALL STARS

Herbert, Frank. DUNE TRILOGY. 58 votes
Asimov, Isaac. FOUNDATION TRILOGY. 42 votes
Niven, Larry. RINGWORLD. 37 votes
Heinlein, Robert. MOON IS A HARSH MISTRESS. 31 votes

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Heinlein, Robert. STRANGER IN A STRANGE LAND. 26 votes
Clarke, Arthur. CHILDHOOD'S END. 25 votes
LeGuin, Ursula. LEFT HAND OF DARKNESS. 24 votes
Miller, Walter. CANTICLE FOR LEIBOWITZ. 22 votes
Niven, Larry and Jerry Pournelle. THE MOTE IN GOD'S EYE. 21 votes
Clarke, Arthur. RENDEVOUS WITH RAMA. 20 votes
Haldeman, Joe. FOREVER WAR. 20 votes
Heinlein, Robert. STARSHIP TROOPERS. 20 votes
(We regret that space does not permit printing the titles with 5 to 12 votes. *SS*)

Dear Mr. Schmidt,

Economics seems to be a blind side of science fiction/fact magazines, and of science fiction in general. I recall an essay on "biological ignorance" not too long ago, but economic ignorance seems far worse. The "state of the art" essay in the December Analog serves as a good example. I don't mean to overcriticize that one article, but it illustrates something that has bothered me for quite awhile.

John Gribbin correctly points out that population growth tends to follow a pattern described by an S curve on a graph. At one point in his essay he seems to know the significance of that leveling out of the population curve in the latter half of the graph, but then he seems to forget it when he talks about the near future of our planet. He writes of population prior to the Industrial Revolution being held down by "the system of natural checks and balances—famine, disease and so on. . ." Then he goes on to talk about our future prospects as if he were speaking of nothing more than an abstract leveling off of a curved line on a piece of paper. Why doesn't he make the connection? And how on earth can he complain about gloomy predictions? "Famine, disease and so on" are not pleasant things to look forward to.

To some degree, Gribbin appears to be counting on a technological fix, a rescue through the obscure workings of "progress." But technological progress becomes increasingly complex and increasingly requires more money and longer-range planning. Gribbin does not seem to understand the economic reaction to crisis. Money is diverted to handle short-term problems in times of crisis. The corporation delays its expansion plans and simply tries to preserve its existing market and assets; the investor deserts the stock market. It works the same for nations. The tax dollars are spent on bread lines, inoculations to halt epidemics, population relocation projects, make-work projects, troops to put down rebellions, wars over control of resources, etc. Not space programs, despite all the potential long-range value.

Still, what about a rescue with current technology? Gribbin writes, "In agriculture, it is now widely accepted by the specialists . . . we could feed double the present global population with just the widespread application of the 'best' present day farming practices." Well, despite what someone claims we *could* do, what counts is what we are *likely* to do. Is global cooperation just around the corner? Recent history does not suggest so. (How many wars have they fought in the Middle East in the last three

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

decades, by the way? I've lost count.) And when cooperation has been pushed, what has been accomplished? Here's a gloomy fact that emerged in recent years: the highly-touted "green revolution" failed. Western industrial nations tried to spread modern farming practices to undeveloped nations and it failed. Why? Because of inadequate market systems, corrupt governments, social caste systems that lock in the inequities, climatological problems, etc.

And maybe the Western nations just didn't try hard enough.

What Gribbin doesn't seem to realize is that these problems—labeled social or political or whatever—are *economic realities*. Because they influence the economic behavior of men, they are *economic facts*. This is a part of what makes the field so complex. In economic terms, attitudes are as real, as solid, as any assembly line—and often far harder to change. Those attitudes (such as blind faith in progress) can be deadly.

A gloomy (economic) fact emerged from America's recent population statistics: population growth slows faster among better-educated, higher-income people. That means that the technological leaders who might avert disasters are becoming a smaller and smaller percentage of the populace.

The "doomsters" are not trying to "screw down the lid" as Gribbin suggests in one cute sentence. They are trying to light a fire under our leaders to push the long-range planning that might avert "famine, disease and so on." They are trying to *help*. Gribbin needs a strong dose of Voltaire. That great mocker of optimism, by the way, helped spur humanitarian reform.

Economic ignorance bugs me.

ALAN KOVSKI
634 Princess Anne Rd
Norfolk, VA

The author replies. . . . SS

I agree with the sentiments expressed by your correspondent; I don't *expect* a "technological fix," but believe that there is no technological reason why mankind should not have a pleasant future. My "message" (elaborated in the book *Future Worlds*, now in press) is that the problems which may bring an unpleasant future are entirely political, in the broadest sense, or economic. The poor starve today in poor parts of the world not because there is insufficient food in the world but because they have no money to buy a share of it on world markets. If it is an "economic fact" that a rich minority will always screw a poor majority, then indeed, God help us. But I believe we are able to change society away from this kind of economy—the classic example is indeed that population curve which *used* to be held down by famine and war but is now leveling off because of the "and so on" which didn't exist before this century, deliberate prevention of conception. Population growth slows faster among the better-educated, higher-income people, so the quicker people are educated and provided higher incomes the better! And don't make the dangerous mistake of assuming people with less education and money are necessarily less *intelligent*.

JOHN GRIBBIN
14 College Terrace
Brighton
Sussex, England

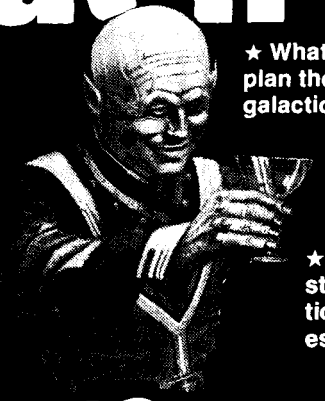
LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

What if?

★ What if you had the power to stop time? (#8532)

★ What if we were descendants of an evil galactic people? (7831)

★ What if everyone but you were afraid to explore space? (1040)



★ What if you had to plan the survival of galactic civilization? (#6221)

★ What if a Thread could devastate a planet? (#2543)

★ What if? *Why not*—stimulate your imagination with the world's finest speculative fiction?

Why not?

Take 4 Science Fiction Bestsellers for 10¢ with membership

See other side for a complete selection

Fold along line. Tape or staple corners and mail—No postage necessary!

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 1 GARDEN CITY, N.Y.

POSTAGE WILL BE PAID BY ADDRESSEE

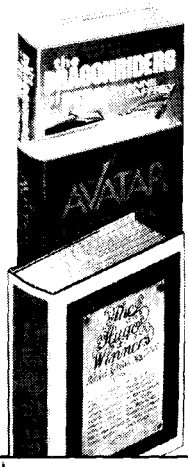
Science Fiction Book Club
Garden City
N.Y. 11530

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Why not? Take 4 for 10¢ now

WITH MEMBERSHIP IN THE SCIENCE FICTION BOOK CLUB

An Extraordinary Offer *What a way to get acquainted with these science fiction greats. Browse through the list of books on this page and choose any 4 for just 10c with membership. It's the most extraordinary sample of science fiction ever offered in one package.*



0786 **The Stars in Shroud.** By Gregory Benford. When Ling Sanjen faces the plague-spreading Quarn on the planet Veden, the fate of humanity is at stake. **Explicit scenes and language may be offensive to some.** By the author of **In the Ocean of Night.** Pub. ed. $8.95

6429 **The Masters of Solitude.** By Marvin Kaye and Parke Godwin. In a struggle for survival, tribal groups pit their psychic powers against a mysterious City's closed gates. **Explicit scenes and language may be offensive to some.** Pub. ed. $10.00

6221 **The Foundation Trilogy.** By Isaac Asimov. The ends of the galaxy revert to barbarism. An SF classic. Comb. price $20.85

4523 **Stardance.** By Spider and Jeanne Robinson. A dancer's art opens the way to communication with aliens. Pub. ed. $8.95

0075 **The Chronicles of Amber.** By Roger Zelazny. At last — the Amber series is complete! Two glorious volumes contain **Nine Princes in Amber; The Guns of Avalon; Sign of the Unicorn; The Hand of Oberon; The Courts of Chaos.** Comb. ed. $30.30

8532 **The Hugo Winners, Vol. I & II.** Giant 2-in-1 volume of 23 award-winning stories, 1955 to 1970. Asimov introduces each. Pub. ed. $15.45

1040 **The Avatar.** By Poul Anderson. Caring men and women brave the unknown potentials of an alien transport machine — and discover more than expected! Pub. ed. $10.95

1008 **Mission to Moulokin.** By Alan Dean Foster. Can anyone help the exploited humanoids of the ice world, Tran-ky-ky — and survive? By the author of **Splinter of the Mind's Eye.** Special edition.

4564 **Medusa's Children.** By Bob Shaw. Vicious squid-like creatures threaten the existence of humans living on a planet of water. Pub. ed. $7.95

7831 **Galactic Empires.** Brian Aldiss, ed. Two-volume anthology of 26 stories by famous authors. Clarke, Asimov and others covers the Rise and Fall of Galactic Empires. Comb. ed. $17.90

4515 **Battlestar Galactica.** By Glen A. Larson and Robert Thurston. Novelization of the pilot for the new hit TV show. Special edition.

0802 **Fireship.** By Joan D. Vinge. Interplanetary intrigue sparks 2 short novels: **Fireship** and **Mother and Child.** Special edition.

2543 **The Dragonriders of Pern.** By Anne McCaffrey. A mammoth volume containing all three novels: **Dragonflight, Dragonquest** and **The White Dragon.** Special edition.

0869 **Infinite Dreams.** By Joe Haldeman. 13 provocative stories from one of today's most extraordinary SF writers. Includes the '77 Hugo winner, *Tricentennial*. Pub. ed. $8.95

2675 **The Far Ends of Time and Earth.** By Isaac Asimov. 3-in-1 volume containing the master's first published novel, **Pebble in the Sky,** plus **Earth is Room Enough** and **The End of Eternity.** Pub. ed. $12.95

0141 **Time Storm.** By Gordon R. Dickson. Gripping adventure and fascinating ideas set in a vast scope of time and space. Pub. ed. $10.00

2808 **False Dawn.** By Chelsea Quinn Yarbro. Civilization has collapsed. In search of an idyllic haven, a young woman makes her way across the desolate landscape in the company of a deposed renegade leader. **Graphic violence and sex may be offensive to some.** Pub. ed. $7.95

4697 **The Fountains of Paradise.** By Arthur C. Clarke. Important new novel by one of the superstars of science fiction. Pub. ed. $10.00

Fold along line. Tape or staple corners and mail—No postage necessary!

How The Science Fiction Book Club Works:

When your application for membership is accepted, you'll receive your introductory package of four books for just 10¢, plus shipping and handling. You may examine them in your home, and if not completely satisfied, return them within ten days—membership will be cancelled and you'll owe nothing.

About every 4 weeks (14 times a year), we'll send you the Club's bulletin, *Things to Come*, describing the 2 coming Selections and a variety of Alternate choices. If you want both Selections, you need do nothing; they'll be shipped automatically.

If you don't want a Selection, or prefer an Alternate, or no book at all, just fill out the convenient form always provided, and return it to us by the date specified.

We allow you at least ten days for making your decision. If you do not receive the form in time to respond within 10 days, and receive an unwanted Selection, you may return it at our expense.

As a member, you need take only 4 Selections or Alternates during the coming year. You may resign any time thereafter, or remain a member as long as you wish. At least one of the two Selections each month is only $2.49. Other extra value Selections are slightly higher but always much less than Publishers' Editions. A shipping and handling charge is added to each shipment. Send no money. Fold ad, postage side out. Fasten and mail.

Yes, I want to join The Science Fiction Book Club

Science Fiction Book Club
Dept. UR001, Garden City, N.Y. 11530

Please accept me as a member. I agree to the membership plan as described in this ad. Send me the 4 books I numbered in the boxes below, and bill me just 10¢ plus shipping and handling. I agree to take 4 additional books at regular low club prices in the coming year and may resign anytime thereafter. Science Fiction Book Club books are Selections for mature readers.

Mr.
Miss
Mrs. _____ (Please print)

Address _____ Apt. # _____

City _____ State _____ Zip _____

Order not valid without signature.
If under 18, parent must sign.

_____

The Science Fiction Book Club offers its own complete hardbound editions sometimes altered in size to fit special presses and save members even more. Members accepted in U.S.A. and Canada only. Canadian members will be serviced from Toronto. Offer slightly different in Canada.

51-S14

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED